

# Surface Water Quality Monitoring Data Management Reference Guide

Texas Commission on Environmental Quality  
Water Quality Planning Division, Monitoring & Assessment Section, Data Management & Analysis Team

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# ***Chapter 1 - Introduction to the SWQM Data Management Reference Guide***

The purpose of this guide is to assist the Texas Commission on Environmental Quality (TCEQ) Clean Rivers Program (CRP) planning agencies, Total Maximum Daily Load (TMDL) Program contractors, Surface Water Quality Monitoring (SWQM) Program staff, Water Quality Standards (WQS) Group staff and contractors, Non-Point Source (NPS) Program contractors, and any other TCEQ programs or external entities submitting data to the TCEQ Surface Water Quality Monitoring Information System (SWQMIS) database. This guide outlines the processes for requesting parameter codes, station ID numbers, submitting and collecting entity codes, tag prefixes, corrections to data in SWQMIS, and data reports. It also explains data review and data reporting (including data reporting formats) and contains reference maps, tables, and descriptions for use when submitting data to the TCEQ. Guidance is also provided for using SWQMIS tools to extract and interact with data in the database.

The original SWQM Program was established in 1967 with the purpose of collecting and analyzing the data necessary to describe the water quality of Texas streams, reservoirs and estuaries. Today, SWQMIS contains more than 39 years of physicochemical and biological data from up to 8,500 monitoring stations throughout Texas. TCEQ, contributing river authorities, cities, and other local, state, and federal agencies collect this data.

The TCEQ maintains SWQMIS. This database serves as a repository for TCEQ surface water quality data. SWQMIS also provides validation and reporting tools, a mapping interface, and modules for tracking information about analytical laboratories, quality assurance documents, and monitoring equipment. Forms related to SWQM data and SWQMIS are available in the Forms module of SWQMIS. These forms include the SWQMIS Change Request Template, the Data Correction Request, the Data Review Checklist, the Parameter/Constituent Request, the Standard Data Request, and the Submitting Entity/Collecting Entity/Monitoring Type Request.

The Monitoring and Assessment Section Data Management and Analysis Team (DM&A) is responsible for management of surface water quality data and metadata in cooperation with other TCEQ water programs and the Information Resources Division (IRD). This responsibility includes documentation and maintenance of records relating to the processes described in this document. Relationships between DM&A and other water program areas are documented in project-specific Quality Assurance Project Plans (QAPPs). Data not meeting quality requirements set forth in these QAPPs may be stored in SWQMIS with appropriate qualifiers (see Chapter 9).

The statewide water quality database has received data since 1967, allowing for the assessment of short and long-term trends. This data may be used by TCEQ to characterize existing conditions, evaluate spatial and temporal trends, develop water quality standards, determine water quality standards compliance, identify emerging problems, and evaluate the effectiveness of water quality control programs.

For additional information contact:

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## ***Chapter 2 - Parameter and Constituent Code Requests***

### **Parameter Code Request Description**

All data to be entered into the SWQMIS database must be identified by an assigned 5-digit parameter code, and each parameter must be associated with a constituent. A constituent is an element, compound, organism, or water characteristic in its most basic form. A parameter is defined as a given constituent measured in a specific media by a specified method. The [SWQMIS Parameter / Constituent Code Request Form](#) must be completed when adding a new parameter or constituent code or changing an existing parameter or constituent code in the database. This form can be obtained from the hyperlink above, or SWQMIS users can locate the form in the SWQMIS module named 'Forms'.

For a current list of all existing parameter codes in the SWQMIS database, go to [www.tceq.texas.gov/waterquality/clean-rivers/data/storet.html](http://www.tceq.texas.gov/waterquality/clean-rivers/data/storet.html), or contact the [Data Management and Analysis \(DM&A\) Team](#) directly.

SWQMIS users may also use the Parameter Inventory Report for a complete list of parameter codes stored in the database.

### **Request Process**

1. SWQMIS parameter code requests are submitted on the [TCEQ Data Management and Analysis SWQMIS Parameter / Constituent Code Request Form](#) located under the Forms Module within the [SWQMIS database](#) or from [TCEQ's external website](#). Once the form has been completed in its entirety the Requester will need to press the 'Submit Form' button located at the top right corner of the form. A pop-up window will appear asking for the email client being used.
  - i. If the Requester selects the option for Desktop Email Application, an email from the Requester's email client will generate with the completed form attached. The Requester still needs to hit 'Send' on the email that their email client generated. The email will be sent to the TCEQ Water Quality Planning Division's Data Management and analysis Team via their proxy box at [wdma@tceq.texas.gov](mailto:wdma@tceq.texas.gov). GroupWise users should note that if the GroupWise Archive is open, the email client will not generate an email.
  - ii. If the Requester selects the option for Internet Mail, the computer's browser window will appear prompting the Requester to save the form. Once the Requester saves the completed form, they will need to generate an email from their Internet Email. The Requester needs to attach the email by browsing to the location on their computer that the form was saved. The Requestor then needs to submit the email to [wdma@tceq.texas.gov](mailto:wdma@tceq.texas.gov).
2. Once the Data Management and Analysis Team receive the Parameter/Constituent Code Request, a data manager will either contact the Requester for more information or complete the request. Most requests are completed within 10 business days.
3. DM&A will notify the Requester via email once their request is completed. The Requesters completed [TCEQ Data Management and Analysis SWQMIS Parameter / Constituent Code Request Form](#) will be attached with the new or modified Parameter / Constituent Code included.

## Parameter/Constituent Code Request Fields

The requestor must complete the shaded portion of the request form.

### *Check Action Required*

The appropriate box must be checked so the DM&A Data Manager knows which action to take (add a new code to the database or make changes to an existing code).

### *Person Submitting Request*

The requestor's name should be entered in the field.

### *Agency or Contractor Name*

Provide the name of the agency with which the requestor is affiliated, or the name of the contractor making the request.

### *Program Area*

Provide the TCEQ program area with which the request is associated.

### *QAPP Title*

Provide the title of the QAPP with which the request is associated.

### *Contact Phone*

Provide a contact phone number for the requestor in case any questions arise during the processing of the request.

### *Explanation of Request*

Provide a brief explanation of why the action is requested

### *Parameter Description*

Provide a brief description of the parameter being requested.

### *Media*

The media in which the parameter is measured (water, sediment, tissue, etc.).

### *Unit of Measure*

Measurement units for the parameter. Enter NA if this field is not applicable.

### *Analytical Method*

Analytical method associated with the parameter. Indicate if this is an approved method. Enter NA if this field is not applicable.

### *Analytical Method Number*

The number associated with the analytical method. Enter NA if this field is not applicable.

*DM&A staff will complete the following form fields:*

### *Parameter Code*

DM&A staff will assign a 5-digit parameter code. This code is then used by the requestor when submitting data. When requesting a change to an existing parameter code, the existing parameter code must be provided by the requestor.

### *Constituent ID*

The ID of the constituent associated with the parameter. A constituent is defined as an element, compound, organism, or water characteristic in its most basic form. For example, if the parameter you requested were Suspended Organic Carbon, the associated constituent ID would be used for Carbon.

### *CAS Number*

The CAS (Chemical Abstracts Service) number associated with the constituent, if applicable.

### *Constituent Category*

Each constituent is associated with a category in the SWQMIS database. Options include Algae, Benthos, Habitat, Macrophytes, Nekton, Physical/Chemical, Phytoplankton, and Zooplankton.

### *Parameter Description*

A description of the parameter.

### *Minimum Value*

A minimum value set for the parameter code. This value sets a data quality control check for values entered into the database. Results less than this value require manual verification.

### *Maximum Value*

A maximum value set for the parameter code. This value sets a data quality control check for values entered into the database. Results greater than this value require manual verification.

### *Entered in SWQMIS by (provided by DM&A Data Manager)*

The signature of the DM&A Data Manager that completes the action requested in the SWQMIS database.

### *Date Entered (provided by DM&A Data Manager)*

The date the action was completed in the SWQMIS database.

## **Parameter Inventory Report**

The SWQMIS database contains parameter codes used for reporting data to the TCEQ. The SWQMIS Parameter Inventory Report contains codes specific to the TCEQ and should not be confused with the list of STORET codes once maintained by the EPA. Data providers should review this report if new or different sampling or analyses are planned. If an existing code does not accurately represent the planned sampling or analyses, a new code should be requested via the SWQMIS Parameter / Constituent Code Request Form. The Parameter Inventory Report contains information on the parameter, reporting units, and analytical method, if applicable.



## **Fields Listed in the Parameter Inventory Report**

### *Parameter Code*

This five-digit code is a unique number assigned by the DM&A Team for use in the SWQMIS database.

### *Parameter Description*

A text description of the parameter, which may include media sampled, analytical method and/or unit of measure.

### *Units of Measurement*

The units in which the parameter is measured.

### *Media*

The media in which the constituent was sampled (water, sediment, etc.)

### *Method*

The analytical method associated with the parameter, if applicable.

### *CAS Number*

The CAS (Chemical Abstracts Service) number associated with the constituent measured, if applicable.

## ***Chapter 3 - SWQM Station Location (SLOC) Request***

All data entered into the SWQMIS database must be associated with a permanent monitoring station identified by a 5-digit Station Identification code (Station ID). Submit a SWQM Station Location (SLOC) Request via the SWQMIS interface:

- To create a new permanent Station ID, or
- To make a change to an existing permanent Station ID.

### **Process for Requesting New Stations or Correcting Existing Stations**

1. Review the inventory of existing stations in SWQMIS prior to requesting a new station. A station may already exist at or very near the desired sampling location. This can be done either by running a Station Inventory Report or by using the Map Viewer in SWQMIS. A new Station ID is not required if the proposed sampling location is within 400 meters up or downstream of an existing stream station, or within a 400 meter radius in reservoirs and bays and if the existing station is representative of the same hydrologic, biologic, or water quality conditions. If the existing station does not accurately represent conditions at the new sampling location, a new station is necessary. For example, if there are conditions such as discharge points, a confluence with an adjoining stream, restrictions of flow and dams, or differences in water depth that could influence circulation, a SLOC Request accurately describing the new location should be submitted. If the specific sampling design requires stations closer together than 400 meters, please specify this in the Monitoring Stations "General Comments" section on the Attachments and Status page within the request.
2. Authorized monitoring entities may submit a SLOC directly into SWQMIS. Alternatively, the submitting entity (TCEQ Program project managers in particular) may choose to do this on behalf of the monitoring entity. TCEQ Field Operations Division (FOD) staff who perform SWQM monitoring submit SLOC requests directly. Anyone filling out a SLOC may choose to save the SLOC prior to submitting it, to continue editing the request later.
3. For new stations, all required fields in the SLOC screens must be filled out by the requestor: SWQMIS will not allow an incomplete SLOC to be submitted. To request changes to an existing station, the SLOC screen will open populated with the data already existing for that station. Make changes to any fields as appropriate. All other fields (where the user desires no changes) should be left as they are. Fields are defined later in this chapter.
4. A map image with scale 1:24,000 or greater, clearly depicting any proposed new station location must accompany the SLOC request form. The map must unambiguously define any nearby major highways, roads, and streams or physiographic features to facilitate verification of the station location. All base maps must be a 1:24,000 scale (7.5-minute series) United States Geological Survey (USGS) topographic map and/or a spatially correct digital orthophoto quarter quadrangle (DOQQ) with resolution of at least 1 meter. The map image must include any major long description landmarks and must be labeled. More information and resources

are included in the SLOC Maps section of this chapter.

5. The SLOC Request is entered into SWQMIS and submitted with a map attached. DM&A verifies that entries made and the attached map follow the DMRG requirements for station locations before being elevated to the status of Pre-Production or Production.
6. The SLOC Request will be returned to the originator (Rejected) with comments if they do not provide a map (for new stations or location changes to existing stations), if the request is incomplete, or if any other significant errors are identified.
7. An electronic copy of the request is returned to the requestor and/or program project manager to be forwarded to the requestor. This acknowledgment includes the unique permanent Station ID to be used when submitting sample results collected at that station.
8. For expedited requests (less than 10 business days), please see the following section.

## Expedited SLOC Requests

If for any reason it is necessary to create or correct a station faster than the usual turnaround of 10 business days, please refer to the following steps:

1. Submit a SLOC as described in the preceding section.
2. E-mail the SLOC Coordinator for your program area, requesting expedited processing and explaining the circumstances. Include the SLOC ID of your SLOC.

## Batch Upload SLOC Requests

SLOC Request information may be uploaded to SWQMIS in ASCII pipe-delimited text file format instead of using the individual SLOC screens. All fields noted in the table below must be included in the text file whether the fields have values or are left blank. Required fields must contain a valid value. Optional fields may be left blank. Submit one or more request records per text file. Note that the “SWQMIS SLOC Batch Upload” screens also require that the user add a map attachment for each “Create SLOC”; there is a screen for this function.

Field	Data Type	Length	Required/Optional
Station ID	Number	5	Must be blank for create request. Required for a change request.
Long Description	Alphanumeric	500	Required for create request. Optional for change request.
Temporary ID	Alphanumeric	10	Optional for create request. Optional for change

	ric		request.
Requester	Alphanumeric	75	Required.
Latitude	Number	3.8+-	Required for create request. Optional for change request.
Longitude	Number	3.8+-	Required for create request. Optional for change request.
Segment ID	Alphanumeric	5	Required for create request. Optional for change request.
Submitting Entity	Alpha	2	Required for create request. Optional for change request.
Collecting Entity	Alpha	2	Required for create request. Optional for change request.
Monitoring Type	Alpha	2	Required for create request. Optional for change request.
Permit Number	Alphanumeric	25	Required for create request only if Monitoring Type is RW (Receiving Water Assessment). Optional for change request.
USGS Gauge ID	Integer	8-15	Optional for create request. Optional for change request.
Stream Station Type Level	Integer	1	Required for create request. Optional for change request.
Stream Station Type Code	Alpha	6	Required for create request. Optional for change request.
Horizontal Organization	Alpha	2	Required for create request. Required for change request if Lat/Long entered.
Horizontal Reference	Alpha	10	Required for create request. Required for change request if Lat/Long entered.
Horizontal Description	Alpha	500	Optional for create request. Optional for change request.
Horizontal Date	Text	10	Required for create request. Required for change request if Lat/Long entered.
Horizontal	Text	7	Required for create request. Required for change

Datum			request if Lat/Long entered.
Horizontal Method	Text	5	Required for create request. Required for change request if Lat/Long entered.
Horizontal Accuracy	Number	4,2	Required for create request. Required for change request if Lat/Long entered.
Elevation Organization	Alpha	2	Optional for create request. Required if an Elevation is provided. Optional for change request. Required if user provides an elevation.
Elevation	Number	6	Optional for create request. Required if an Elevation is provided. Optional for change request. Required if an Elevation is provided.
Elevation Date	Text	10	Optional for create request. Required if an Elevation is provided. Optional for change request. Required if an Elevation is provided.
Elevation Datum	Text	7	Optional for create request. Required if an Elevation is provided. Optional for change request. Required if an Elevation is provided.
Elevation Method	Text	5	Optional for create request. Required if an Elevation is provided. Optional for change request. Required if an Elevation is provided.
Elevation Accuracy	Number	4,2	Optional for create request. Required if an Elevation is provided. Optional for change request. Required if an Elevation is provided.

Example of create request:

**| OKRY CREEK 80 METERS DOWNSTREAM OF US HWY 259 / TWO DEER TRAIL SOUTH OF OMAHA IN MORRIS COUNTY | 08049565 | tkirklan | 32.86734948 | - 97.03917507 | 0841C | GS | GS | RT | | 08049565 | 1 | STREAM | GS | OTHER | | 04/01/2009 | NAD27 | UNKNOWN | 9999 | | | | |**

## SLOC Maps

As long as the scale and readability are not negatively impacted, submission of a single map showing multiple sampling sites is encouraged. While in many cases it is not necessary to create individual maps for each SLOC, each “Create SLOC” request submitted via SWQMIS is required to include a map attachment. Requesters using GIS software who have ready-made maps may use the SLOC interface to attach these files. Those without map-generation options outside SWQMIS can use the Map tool in the SLOC General Information screen to capture a map image

to use as the attachment. See the SWQMIS User Guide for detailed instructions on use of SWQMIS Map tools.

The TCEQ Geographic Information Systems web page also offers various information sources and tutorials: (<http://www.tceq.state.tx.us/gis/index.html>). Two online mapping resources are provided by the TCEQ for determining latitude and longitude coordinates without the use of Global Positioning Systems (GPS) and for generating map images:

### **TCEQ USGS Topographic Map Viewer**

The Topographic Map Viewer (“Topo Viewer”) displays the 7.5-Minute USGS topographic maps for the State of Texas using an Internet browser. With this viewer, not only can you view and print USGS Topographic Maps, but you can also determine the exact Latitude and Longitude of any feature visible on the topographic maps. These coordinates are automatically converted to the North American Datum of 1983 (NAD83). Several reference map layers such as counties, roads, cities, and rivers have been provided to help guide you to your area of interest. In addition, the 7.5-minute quadrangle index and the quarter quad index have been included to help determine the names and numbers for specific quads. <http://www.tceq.state.tx.us/gis/drgview.html>

### **TCEQ Spatial Queries and Mapping Application Viewer**

The TCEQ Spatial Queries and Mapping Applications Viewer allows users to view aerial imagery for any area in Texas, obtain latitude and longitude coordinates for point locations and locate points in Texas that correspond to known street addresses. It incorporates the Google Map Viewer, but includes functionality and tools specifically designed to meet TCEQ customer needs. Because the agency posts the on the TCEQ external web page and is available for public use, its use of the Google Maps Viewer complies with the [Terms of Service for Google Maps](#).

<http://www.tceq.state.tx.us/gis/sqmaview.html>

### **Other Sources for USGS Imagery**

Web services that host USGS imagery are also recommended for creating SLOC-appropriate maps: a list of services is available at <http://www.usgs.gov/pubprod/>. If you have questions about making maps for SLOC Requests or would like to see examples of recommended formats, please contact DM&A for assistance.

## **SLOC Request Field Descriptions**

**The following fields must be completed by the requestor:**

#### **Station ID**

The station ID is a 5-digit code that is automatically generated when a user creates a new site in SWQMIS and is used when submitting sampling results from that site. A station ID is supplied by the requestor only when requesting changes to an existing station in SWQMIS.

#### **Long Description**

A detailed description limited to 500 characters is required. The description must be adequate

to describe the exact location of the station. The description should not include directions to the station relative to landmarks, but should be concise and include enough specific information to allow someone to locate the station on a map with 25-meter accuracy. The name of the water body must be noted first, followed by relative location such as river meters/kilometers downstream or upstream of a named or numbered road or tributary, preferably followed by the distance to a city or named feature on a map. The permit number of the target facility must be included in the long description for sites that are reporting data for a Receiving Water Assessment (RWA). See the “Helpful Hints on Completing SLOC Requests” section of this chapter for more information about station descriptions.

#### Temporary ID

Any identifier used by the submitter to track a station requested but not established should be noted here. If, for example, a SLOC map is marked with ATPWD 23" to illustrate the location of the proposed station, ATPWD 23" should be noted in the temporary ID field. This may also be the unique identifier used by the submitting entity in their database.

#### Requester

The SWQMIS User ID of the person making the request. If the Requester is not a SWQMIS User, note instead the proper name and Organization (such as “Bruce Ridpath, H-GAC”).

#### Latitude/Longitude

Latitude and longitude in standard decimal degree format must be used. The accuracy of the latitude/longitude coordinates is governed by the TCEQ’s Operating Policy and Procedure 8.11.02, Geographic Information Systems Positional Data, which requires accuracy of 25 meters. Specify latitude and longitude values in decimal degrees to the nearest 1/10,000th of a degree (four decimal places) to meet this accuracy requirement. Latitude and longitude coordinates are required and preferably determined by trained staff using a Global Positioning System (GPS) unit and appropriate post processing. Another accurate method is the interpolation of one-meter resolution DOQQs or using the TCEQ Map Viewers. DOQQs for the entire state of Texas are available from the Texas Natural Resources Information System (<http://www.tnris.state.tx.us/>) or via a TCEQ web viewer at: (<http://www.tceq.state.tx.us/gis/index.html>) - see the SLOC Maps section of this chapter for more information on this viewer.

#### Submitting Entity

Formerly called “Source Code 1,” this is a 2-character code for the organization that will be submitting monitoring data from this location to the TCEQ. See Chapter 4 for a list of valid codes.

#### Collecting Entity

Formerly called “Source Code 2,” this is a 2-character code for the organization that will be collecting monitoring data at this location. See Chapter 4 for a list of valid codes.

#### Monitoring Type

Formerly called “Program Code,” this is a 2-character code for the type of monitoring that will be performed at this location. See Chapter 4 for a list of valid codes.

### Permit Number

If the station is near or will be used to monitor discharge from a permitted facility, report the permit number. Do not use the number symbol (#); simply list the alphanumeric value (such as "123-7558-A").

### Segment ID

A Segment ID is a required 4 or 5 character segment code determined from the Segment Descriptions list as found in the [Texas Surface Water Quality Standards \(TSWQS\), Texas Administrative Code \(TAC\), Part 1, Chapter 307, Appendix C.](#)

### USGS Gauge ID

Submit the USGS gauge station ID for stations at the same location as a USGS gauge station. This number is obtained by reviewing USGS topographic maps or from the USGS site inventory (<http://waterdata.usgs.gov/nwis/si>).

### Stream Station Level

Note the Level (1 through 5) of the Stream Station Type Code used. See Appendix B for information on Stream Stations Levels.

### Stream Station Code

Stations must be identified using the coding scheme listed in Appendix B. For example, a station that is within a mixing zone must be coded with the Level 2 value "NONAMB. The mixing zone is defined in the [SWQM Procedures Manual, Volume 1](#) (1).

### Horizontal Organization

The organization that generated the horizontal coordinates (latitude and longitude) for this station. Often, this is the same as either the Submitting Entity or Collecting Entity for the stations. Any Submitting or Collecting entity code listed in Chapter 4 may be used for this field.

### Horizontal Reference

A code that specifically describes the precise location of the coordinate with reference to the facility, if applicable. For many ambient stations not associated with any facility, the code OTHER applies. Valid values are listed in Appendix D.

### Horizontal Description

Additional information about the site location, such as driving directions or specific references for locating the site within a facility.

### Horizontal Date

The date on which the horizontal coordinates (latitude and longitude) were generated.

### Horizontal Datum

The horizontal reference datum used when collecting the horizontal coordinates. Valid values are listed in Appendix D. NAD83 is the most widely used since it is the datum used for DOQQ's and other popular mapping tools.



## Horizontal Method

A code that defines the method used to generate the horizontal coordinates. Appendix D lists valid values. The method code may also allow determination of the Horizontal Accuracy value as well.

## Horizontal Accuracy

Assessment of the horizontal accuracy of the reported latitude/longitude coordinates expressed in meters. Accuracy will depend on the method of collection, procedures and equipment used, and/or the results of any statistically valid test of similar points. For example, coordinates obtained using a 1-meter DOQQ (including Google Maps) have an assumed accuracy of 5 meters, while those determined using a 1:24,000 scale topographic map would have an assumed accuracy of 12 meters. A value of 9999 should be entered if accuracy cannot be determined.

**The following fields may optionally be completed by the requestor:**

**Note that if a user reports a value for any of these fields, values for all six fields are then required.**

## Elevation Organization

The organization that generated the horizontal coordinates (latitude and longitude) for this station. Often, this is the same as either the Submitting Entity or Collecting Entity for the stations. Any Submitting or Collecting entity code listed in Chapter 4 may be used for this field.

## Elevation

A value expressing the measured height above (or depression below) mean sea level, in meters.

## Elevation Date

The date on which the elevation value was generated.

## Elevation Datum

The vertical reference datum used when collecting the elevation value. Valid values are listed in Appendix D.

## Elevation Method

A code that defines the method used to generate the elevation value. Appendix D lists valid values.

## Elevation Accuracy

Assessment of the accuracy of the reported elevation expressed in meters. Accuracy will depend on the method of collection, procedures and equipment used, and/or the results of any statistically valid test of similar points. A value of 9999 should be entered if accuracy cannot be determined.

**The following fields are maintained by DM&A or automatically stored by SWQMIS:**

## Ambient Indicator

This Y/N code is an indicator of whether the site is considered representative of ambient conditions in the water body.

#### Authorizer ID

SWQMIS captures the User ID of the data manager who promoted the station record to production status.

#### Submitter ID

SWQMIS captures the User ID of the individual submitting a SLOC.

#### Established Date

The date a station was originally given production status in SWQMIS.

#### TCEQ Region

The TCEQ administrative Region in which the station falls, automatically assigned based on the station coordinates.

#### Basin

The SWQM-defined river basin in which the station falls, automatically assigned based on the associated Segment ID.

#### On-Segment Indicator

This binary indicator (yes/no) denotes whether the station falls directly within the bounds of a TCEQ classified or unclassified segment. If no, the station falls on a water body flowing into the associated Segment ID.

#### NHD Reach Code

The 14-digit USGS National Hydrography Dataset code for the water body segment at the station location.

#### County

The name of the Texas county in which the station falls, automatically assigned based on the station coordinates. For out-of-state stations or stations out in the Gulf of Mexico, this is the closest Texas county.

#### Level III Ecoregion

The EPA Level III Ecoregion designation at the station location, automatically assigned based on the station coordinates. Ecoregions maps based on EPA data are included in Appendix A.

#### Level III Ecoregion Reference Site Indicator

This binary indicator (yes/no) denotes whether the station was established as a reference site for the Level III Ecoregion – a minimally impacted location most representative of the naturally occurring conditions within that Ecoregion.

#### Level IV Ecoregion

The EPA Level IV Ecoregion designation at the station location, automatically assigned based on the station coordinates. Ecoregions maps based on EPA data are included in Appendix A.

#### Level IV Ecoregion Reference Site Indicator

This binary indicator (yes/no) denotes whether the station was established as a reference site for the Level IV Ecoregion – a minimally impacted location most representative of the naturally occurring conditions within that Ecoregion.

#### STORET Station Type Primary

Analogous to the Stream Station Type Code (Level 1) also used to describe the station, this is a specific EPA code used in the national STORET database.

#### STORET Station Type Secondary

Analogous to the Stream Station Type Code (Levels 3-5) also used to describe the station, this is a specific EPA code used in the national STORET database.

#### General Comments

Any comments about the station, entered by either the Submitter or Authorizer.

#### Status

A station may exist in SWQMIS with one or more status designations at any given time. Stations available for data submission and reporting have a status of Production. When a SLOC is accepted for review by a data manager, it has a status of Pre-Production and is not yet available for use.

### **Inundated Stations**

Stations inundated by reservoir filling are given a status of Retired. The phrase "now inundated use #####" is added to the original station description to show the new reservoir station ID. The station is off-segment if it is located above the normal pool elevation as identified in the TSWQS. If monitoring is ongoing at the same location (now in a new reservoir segment), a new station is created for reporting the post-inundation data.

### **Duplicate Stations**

Stations may have been created at locations where a station already existed, through errors in description or latitude/longitude. Where these co-located or "duplicate" stations are discovered, some simple analysis is performed to determine the appropriate action. If no data has been reported to SWQMIS at either station, the lowest numeric station ID is retained for reporting. The other station is given a status of Retired in SWQMIS and is no longer available for reporting data. If one station has data and the other does not, the station with no data is retired and annotated as above. If both stations have data, interested parties are consulted to choose an acceptable course of action. There are also cases where, for legitimate monitoring purposes, stations are created in close proximity. Documentation will be maintained regarding the necessity of the seemingly duplicate stations in these cases.

## Station Verbal Descriptions

### Helpful Hints on Completing SLOC Requests

The description must contain concise, specific information that allows the station to be located within a 25-meter radius on any map or in the field. The description must be adequate for locating the station on USGS topographic or other maps that meet requirements outlined in the SLOC Maps section of this chapter. Useful information may include a nearby town, for example, “Trinity River 37 meters upstream of US 57 **near** Columbus” or “... **in** Columbus” or “... **southwest of** Columbus.” If a station is not located near a city or town, it must be referenced to some other named, mapped feature. For stations on unclassified tributaries, write the most characteristic identifier first, such as “Cagona Creek at US 29” or “Clear Creek 2.57 kilometers downstream of SH 439 near Sisterdale.” Descriptions are limited to 500 characters.

Do:

- Use the metric system to convey measurements.
- Report any measurement over 1000 meters in kilometers.
- Use “at” rather than “@”.
- Spell out “Street”, “Avenue”, “Railroad”, “Road”, and similar words whenever possible; use common abbreviations such as “St”, “Ave”, “RR”, and “Rd” only when necessary to save space.
- Use the term “unnamed road” if the name of a road crossing is not obtainable. Unnamed roads must be referenced to an upstream or downstream named road. If no road is available to reference, a named tributary may be used.
- Use “WWTP” for Wastewater Treatment Plant rather than “STP (for Sewage Treatment Plant).”
- Use “upstream” and “downstream” rather than “above” and “below.”
- Use the abbreviated form indicated in the following examples for numbered roads:

Hays CR 450

US 377

IH Loop 610

SH Spur 160

FM 2175

IH 45

SH Loop 329

RR 620

- Use the form indicated in the following examples for roads with more than one name, separating the names with a slash:

Telephone Road/SH 35

IH 45/US 75

SH 95/SH Loop 230

Pitts Street/North Main Street

- Use the form indicated in the following example for different road names on either side of a bridge, separating the names with a dash:

Waugh Drive-Yale Street

- For County Roads (CR), include the full name of the county road in the description:

Williamson CR 258

Caldwell CR 100

- Use “immediately” rather than “just” when distances are unknown, but less than 25 meters:

. . . immediately upstream of Maple Street.

- Give exact distances upstream or downstream in meters rather than feet when the distance is less than 1.00 Kilometer (such as 28 meters). Indicate the unit of measurement (meters, kilometers).
- Give exact distances upstream or downstream in kilometers rounded to up to the nearest hundredth when the distance is greater than or equal to 1000 meters (1.07 kilometers).
- On reservoirs, give distance from the center of a dam, a road crossing, or other named, mapped feature.
- Whenever possible, use only the four cardinal directions in descriptions. For example, use “100 meters North and 200 meters West from the intersection of IH 35 and US 290” rather than “225 meters Northwest of the IH 35-US 290 intersection.” This triangulated reference format is more precise.
- Use “unnamed tributary of” rather than “unnamed creek”. Follow this with the name of the water body, “Unnamed tributary of Caney Creek at US 27”. Since there may be more than one unnamed tributary of Caney Creek that crosses US 27, further description may be necessary. For example, “Unnamed tributary of Caney Creek at US 27 confluent with Caney Creek 2.57 kilometers upstream of IH 35”, or “Unnamed tributary of Caney Creek at US 27 South of Arapaho Park”.
- Unnamed tributaries with a wastewater treatment plant (WWTP) discharge may be named for the treatment plant as in “City of Commerce WWTP Ditch 53 meters upstream of discharge to Apple Creek”.
- WWTP effluent descriptions must identify the permit such as “City of Columbus WWTP Permit WQ 1857-02”. Do not include a “#” sign in the permit number.
- Sometimes there may be no road or other feature on the map that can be used to describe a stream station. When there are no roads, the distance upstream or downstream from a confluence can be used as the reference location. In describing tributary locations using the mainstream confluence as the reference location, use the format “Barton Creek 2.53 kilometers upstream of its confluence with the Colorado River”.
- When describing mainstream locations using a tributary as the reference location, use the format “Colorado River 4.82 kilometers upstream of Sandy Creek”.

Don’t:

- Do not use station labels (letters and number, for example, “AA” or “D2”) in long

descriptions. If needed, alternate station names may be used in the Temporary ID field.

- Do not use the terms “Crossing”, “Bridge”, or “Highway” unless it is an official, mappable part of the place or roadway name.
- Never use “at” when the reference location used is a stream or WWTP outfall unless the station is specifically for sampling effluent (Stream Station Type Level 1 = PIPE). For monitoring the water body near the outfall, use “immediately upstream of” or “immediately downstream of”; for example, “Arroyo Colorado immediately upstream of the Deweyville WWTP outfall”. Remember to report the permit number when monitoring adjacent to any permitted outflow.
- Do not use the pound sign (#), the ampersand symbol (&), parentheses, or any other special characters. Any punctuation used (commas, apostrophes, periods other than in numbers) may be removed from the verbal description by DM&A for consistency of format.

## **Monitoring Station Inventory Report**

The Station Inventory Report generates a list of sampling stations in the SWQMIS database. The Station Inventory Report can be used to verify that details about a monitoring station location are correct, as it includes all of the metadata elements listed in the SLOC Request Field Definitions section above. Users of SWQMIS should review the Station Inventory Report and/or use the Map feature prior to submitting a SLOC to determine whether a station that meets their needs already exists at or near their intended sampling site. For non-SWQMIS users, a list of stations for each river basin can be viewed online at <http://www.tceq.texas.gov/waterquality/clean-rivers/data/station.html>.

## ***Chapter 4 - Submitting Entity, Collecting Entity, and Monitoring Type Codes***

Submitting Entity, Collecting Entity, and Monitoring Type Codes are assigned by DM&A at the request of TCEQ Programs (CRP, SWQM, TMDL, Standards, NPS, et cetera). These codes are used to identify entities responsible for submitting data and conducting sampling, and to designate the type of sample collection. Submitting Entity (formerly Source Code 1) is a 2-character code that identifies the entity responsible for submitting data to the TCEQ. Collecting Entity (formerly Source Code 2) is a 2-character code that identifies the entity responsible for actual sampling. The Monitoring Type (formerly Program Code) is used to designate the type of sampling to be conducted (for example: routine monitoring, monitoring biased for flow, or monitoring biased to season).

New codes are requested by submitting a Submitting Entity/Collecting Entity/Monitoring Type/Tag Prefix Request and Review Checklist to DM&A.

This form can be obtained from multiple locations. For SWQMIS users, the forms are in the SWQMIS module named 'Forms'. Those with access to the TCEQ via the internet can locate the forms at

[http://www.tceq.texas.gov/compliance/monitoring/water/quality/data/wdma/wdma\\_forms.html](http://www.tceq.texas.gov/compliance/monitoring/water/quality/data/wdma/wdma_forms.html) or

Existing codes are listed on the following pages.

### **Submitting Entity Codes**

The entity responsible for submitting data.

AB	City of Abilene
AC	Texas A&M College Station, Department of Wildlife & Fisheries Science
AG	Texas A&M University Galveston Seafood Safety Lab
AK	Texas A&M University - Kingsville
AM	Texas A&M University – Corpus Christi
AN	Angelina – Neches River Authority
AP	Alan Plummer Associates, Inc.
AQ	Edwards Aquifer Authority
AR	City of Arlington
AT	Texas A&M Agrilife Research - Stephenville
AU	City of Austin
BC	City of Boerne
BE	City of Beeville

BR	Brazos River Authority
BS	Barton Springs – Edwards Aquifer Conservation District
BU	Baylor University
CB	Conrad Blucher Institute for Surveying and Science
CC	City of Corpus Christi
CE	Corps of Engineers
CL	Caddo Lake Institute
CP	Coastal Bend Bays and Estuaries, Inc.
CR	Canadian River Municipal Water Authority
CY	Cypress Basin
EA	EA Engineering, Science, & Technology, Inc.
EI	Espey Consultants, Inc.
GA	City of Galveston
GB	Guadalupe Blanco River Authority
GS	United States Geological Survey
HD	Texas Department of State Health Services
HG	Houston-Galveston Area Council
HO	City of Houston
IB	International Boundary & Water Commission
IR	City of Irving
JC	Jefferson County Environmental Control District
JM	J.M. Miertschin & Associates, Inc.
KI	City of Killeen
LC	Lower Colorado River Authority
LD	LEADS
LN	Lavaca-Navidad River Authority
LV	Lower Neches Valley Authority
NR	Nueces River Authority
NT	Northeast Texas Municipal Water District
PA	Patrick Bayou TMDL Lead Organization
PB	PBS&J



PE	Parson's Engineering Science
PW	Texas Parks & Wildlife Department
RC	Texas Railroad Commission
RI	City of Richardson
RR	Red River Authority
SA	San Antonio River Authority
SB	Senate Bill 835
SJ	San Jacinto River Authority
SN	San Antonio Metropolitan Health Department
SR	Sabine River Authority
SU	Sulphur River Basin Authority
TA	Texas Institute for Applied Environmental Research
TH	Tetra Tech, Inc.
TI	Texas River Systems Institute – Texas State University
TP	Texas Municipal Power Authority
TR	Trinity River Authority
TS	Texas Engineering Experimental Station - SERF
TT	Texas State Technological College
TW	Texas Watch
TX	Texas State Soil and Water Conservation Board
UC	Upper Colorado River Authority
UG	Upper Guadalupe River Authority
UH	University of Houston
UI	University of Houston Clear lake Environmental Institute of Houston
UM	University of Texas Marin Science Institute
UN	Upper Neches River Authority
UR	URS Corporation
WA	City of Waco
WC	Texas Commission on Environmental Quality

WM	Water Monitoring Solutions, Inc.
XX	Default Code for Unknown Sources

## Collecting Entity Codes

The entity responsible for conducting the sampling.

AB	City of Abilene
AC	Texas A&M College Station, Department of Wildlife & Fisheries Science
AG	Texas A&M University Galveston Seafood Safety Lab
AK	Texas A&M University - Kingsville
AM	Texas A&M University – Corpus Christi
AN	Angelina – Neches River Authority
AP	Alan Plummer Associates, Inc.
AQ	Edwards Aquifer Authority
AR	City of Arlington
AS	Water Quality Assessment Team
AU	City of Austin
BB	Big Bend National Park Service
BC	City of Boerne
BE	City of Beeville
BN	City of Brownsville
BO	Brownsville Public Utilities Board
BP	Big Thicket Preserve
BR	Brazos River Authority
BS	Barton Springs – Edwards Aquifer
BT	Border Environmental Assessment
BU	Baylor University
CA	City of Corsicana
CB	Conrad Blucher Institute for Surveying and Science
CC	City of Corpus Christi
CE	Corps of Engineers
CL	Caddo Lake Institute

CO	TCEQ Central Office
CP	Coastal Bend Bays and Estuaries, Inc.
CR	Canadian River Municipal Water Authority
CW	Colorado River Municipal Water District
CY	Cypress Basin
DA	City of Dallas
DM	TCEQ SWQM Data Management
DR	City of Del Rio
EA	EA Engineering, Science, & Technology, Inc.
EC	Edwards Aquifer Research & Data Center
EI	Espey Consultants, Inc.
EK	Donald Macnair
EM	Ecological Communications Corporation - ECOMM
EP	El Paso Community College
FC	Franklin County Water District
FO	TCEQ Regional Office
FS	Town Lake Fish Study
FW	City of Fort Worth
GA	City of Galveston
GB	Guadalupe Blanco River Authority
GC	Galveston County Health District
GF	Galveston Bay Foundation
GP	City of Grand Prairie
GS	United States Geological Survey
GW	Groundwater Protection Team
HC	Harris County Pollution Control
HD	Texas Department of State Health Services
HG	Houston-Galveston Area Council
HH	Houston Health & Human Services
HI	Hick & Company, Inc.
HO	City of Houston
HP	City of Houston Department of Public Works & Engineering
HR	HDR Engineering Co.

HW	Houston Water Quality Control
HZ	Hays County
IB	International Boundary & Water Commission
IR	City of Irving
JM	J.M. Miertschin & Associates, Inc.
KG	City of Kilgore
KI	City of Killeen
LA	City of Laredo Health Department
LB	Texas Watch Little Bay Sentinels
LC	Lower Colorado River Authority
LD	LEADS
LE	City of Laredo Environmental Engineering Division
LL	Trinity River Authority Lake Livingston Project
LN	Lavaca-Navidad River Authority
LR	Texas Agrilife Research
LV	Lower Neches Valley Authority
LW	City of Longview
MB	Matagorda Bay Study
MF	Tetra Tech/MFG, Inc.
MG	Texas A&M University Galveston Lab of Oceanographic and Environmental Research
NM	North Texas Municipal Water District
NR	Nueces River Authority
NT	Northeast Texas Municipal Water District
NW	North Water District Laboratory Service, Inc.
PB	PBS&J
PE	Parson's Engineering Science
PL	City of Pearland
PP	Paul Price Associates
PW	Texas Parks & Wildlife Department
RC	Texas Railroad Commission
RI	City of Richardson

RN	Rio Grande International Study Center
RR	Red River Authority
SA	San Antonio River Authority
SC	Friends of Sulphur Creek
SF	Stephen F. Austin State University
SG	City of San Angelo
SH	City of Sherman
SJ	San Jacinto River Authority
SL	Sul Ross University
SM	San Marcos River Rangers
SN	San Antonio Metropolitan Health Department
SP	Sabal Palms Audubon Center and Sanctuary
SQ	SWQM Water Quality Monitoring Team
SR	Sabine River Authority
ST	Water Quality Standards Team
SU	Sulphur River Basin Authority
SV	Salado Creek Volunteer Monitors
SW	SWCA, Inc.
TA	Texas Institute for Applied Environmental Research
TC	Texarkana College
TD	Tarrant Regional Water District
TE	Texas Eastman
TH	Tetra Tech, Inc.
TI	Texas River Systems Institute – Texas State University
TK	Texarkana Water Utilities
TL	Texas A&M University Trace Element Research Laboratory
TM	Total Maximum Daily Load Team
TR	Trinity River Authority
TS	Texas Engineering Experimental Station - SERF
TT	Texas State Technological College
TW	Texas Watch

TX	Texas State Soil and Water Conservation Board
TY	City of Tyler
UB	University of Texas Brownsville
UC	Upper Colorado River Authority
UE	University of Texas at El Paso Department of Biological Sciences
UF	US Fish and Wildlife Service
UG	Upper Guadalupe River Authority
UH	University of Houston
UI	University of Houston Clear lake Environmental Institute of Houston
UM	University of Texas Marin Science Institute
UP	Upper Pecos Soil and Water Conservation District
UR	URS Corporation
UT	University of North Texas
WA	City of Waco
WL	Wendy Lopez and Associates
WM	Water Monitoring Solutions, Inc.
WV	City of Wimberley
WX	City of Waxahachie
XX	Default Code for Unknown Sources
ZP	Zapata County
01	Boy Scouts of America Sam Houston Chapter
43	Colorado River Watch

## Monitoring Type Codes

The type of sampling being conducted (For use with data collected 9/1/2007 or later).

BE	Biased Event – Monitoring targeted toward a specific event (e.g., fish kill, spill).
BF	Biased Flow – Monitoring targeted toward certain flow conditions (e.g., runoff event)
BS	Biased Season – Monitoring targeted

toward certain time of year (e.g., season or CD <sup>1</sup>	index period.) Continuous Data – LEADS data generated by the CWQMN (monitoring intent not characterized).
CE <sup>1</sup>	Continuous Event – Continuous monitoring targeted toward a specific event (the summary statistics are coded “BE”).
CF <sup>1</sup>	Continuous Flow – Continuous monitoring targeted toward certain flow conditions (the summary statistics are coded “BF”).
CQ <sup>1</sup>	Continuous QA – Continuous monitoring QA samples.
CS <sup>1</sup>	Continuous Season – Continuous monitoring targeted toward a certain time of year (the summary statistics are coded “BS”).
CT <sup>1</sup>	Continuous Routine – Continuous monitoring not intentionally targeted toward any environmental condition (the summary statistics are coded “RT”).
EB	Equipment Blank – QC samples.
FB	Field Blank – QC samples.
FS	Field Split – QC samples.
TB	Trip Blank – QC samples.
QA	Quality Assurance – QC samples.
RT	Routine – Monitoring not intentionally targeted toward any environmental condition or event.
RW	Receiving Water Assessment – Used for RWA only, not routine biological sampling.

<sup>1</sup>Continuous monitoring samples include CWQMN, and the individual grab samples that are collected during continuous sonde deployments such as 24-hr DO monitoring.

### **Retired Monitoring Type Codes**

AC	Arroyo Colorado Assessment – For Arroyo Colorado Shrimp Farm Project.
BN	Biological – Not for use determination (collection consistent with TCEQ protocol, does not meet TCEQ vouchering requirement).

CM	Citizen Monitoring.
DI	Diel Sampling – Multiple field measurements conducted over a 24 hour period and/or summary 24 hour D.O. statistics.
DL	303(d) List related Monitoring – Additional sampling to further characterize the extent and severity of 303(d) listed impairments.
ER	Ecoregion Study.
EX	Experimental Analytical Samples – Samples from test sites and equipment samples set to the lab for analysis.
FL	Flow Monitoring Study – Flow monitoring to support permit actions.
GR	TCEQ Data Management General Review.
IS	Intensive/Systematic - Sub-watershed monitoring on a cyclical basis.
NA	DQO's not appropriate for 305(b) Assessment.
NI	DQO's not appropriate for 305(b) 24 hour data.
NP	Non Point Source Sampling – Samples that characterize non-point source loading.
NS	Non-Surface Water Sampling.
RG	Rio Grande Toxic Substance Study – For TCEQ Central Office RGTSS only.
RS	Real-time continuous monitoring.
SE	Special Event – Sampling done at fish kills, spills, flood events, etc.
SS	Special Study – For monitoring scheduled as part of an approved special study.
TI	24 hour sampling collected under a TMDL QAPP. Multiple field measurements conducted over a 24 hour period and/or summary 24 hour D.O. statistics.
TM	Targeted monitoring.
TN	Sampling collected under a TMDL QAPP, but not appropriate for 305(b) assessment.
TQ	Sampling collected under a TMDL QAPP and is appropriate for 305(b) assessment

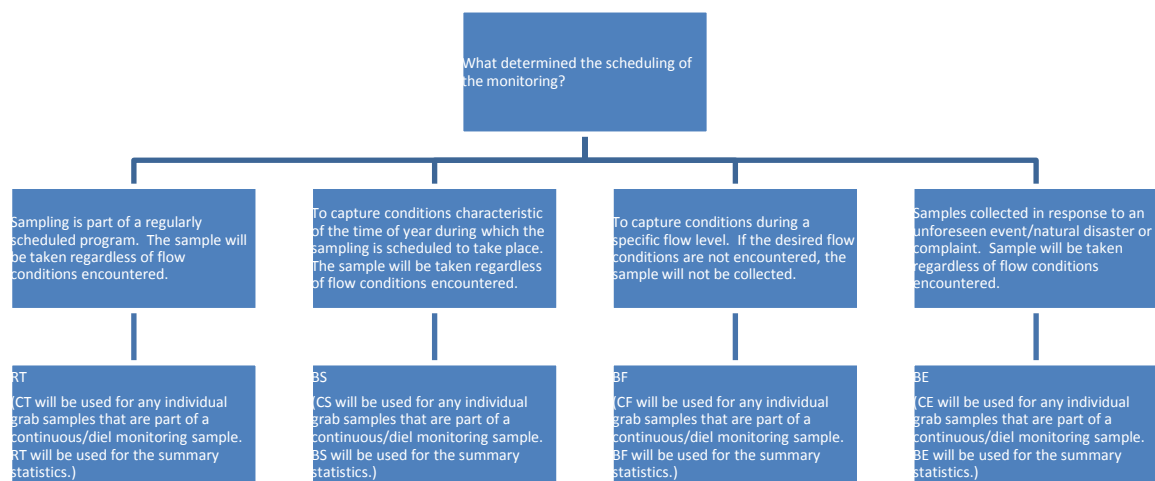


TS		Targeted Monitoring Special Study – Site specific monitoring to support permit actions
XN		SWQM Acquired Nonpoint Source Sampling
XR		SWQM Acquired Routine / Baseline Water Sampling
XS	XS	Data Acquired by SWQM for Special Studies
XX	XX	Type of Sampling Unknown – Historical Data

## Choosing the Appropriate Monitoring Type Code

The new Monitoring Type Codes are designed to answer the main question of bias in sampling, so the decision of what code to use is determined by any targeting of the sampling:

- “RT” samples are scheduled in advance without intentionally trying to target any certain environmental condition. The sample is collected regardless of the conditions encountered.
- “BS” samples are scheduled for a certain time of year because the sample is meant to capture the conditions characteristic of that time of year. The sample will be taken regardless of the flow condition encountered.
- “BF” samples cannot be precisely scheduled in advance because they target a certain flow condition that must be present in order for the sample to be taken.
- “BE” samples are not typically scheduled in advance, but are reactive to an emergency condition.



## ***Examples***

### **RT**

- Regularly scheduled (quarterly, monthly, weekly) planned monitoring where the sample will be taken regardless of environmental conditions encountered.
- Sampling to support a certain project AS LONG AS the monitoring is not targeting an environmental or temporal condition.
- Sampling at stations on a rotational or systematic basis AS LONG AS the monitoring is not targeting an environmental or temporal condition.
- The summary statistics of 24hr monitoring that is NOT purposefully scheduled for a certain time of year (for example, scheduled monthly).
- Biological sampling NOT purposefully scheduled for a certain time of year (for example, quarterly).
- Sampling on an intermittently flowing water body or spring scheduled for those periods when flow is likely to be encountered NOT because conditions during those periods are trying to be captured.
- Routine monitoring on tidal water bodies.
- Most fish tissue sampling.
- Most sediment sampling.
- Flow monitoring studies with regularly scheduled sampling events.

### **BS**

- The summary statistics of 24hr monitoring that is purposefully scheduled for a certain time of year (for example, critical/index periods). Reporting of the individual grabs that make up the 24hr event would be CS.
- Biological sampling purposefully scheduled for a certain time of year (for example, critical/index periods).
- WLEs/RWAs scheduled to try to capture conditions during the index or critical periods.
- Habitat studies.
- ALA/ALM/UAA that target the critical period.

### **BF**

- Monitoring under a study designed to collect samples during runoff events.
- A water rights study that targets flows below 7Q2 (that is, the sample is only taken if flow is below 7Q2).
- A study of a tidal water body that targeted at specific tidal conditions.

### **BE**

- Usually not previously planned
- Fish kill investigation.

- Monitoring in response to a significant natural disaster (for example, hurricane) to capture conditions directly caused by the disaster.
- Sampling spills.
- Complaint investigations.

## *Chapter 5 - Tag Prefixes*

The Tag Prefix is the first one or two digits of the Tag ID and is used to identify the entity reporting data to the TCEQ. The SWQMIS database is capable of identifying a sample with a unique Tag ID of up to 9 characters. If it is necessary for a dataset to use more than 7-digit Tag IDs, please contact DM&A to get approval. To request a Tag Prefix from DM&A, submit the [Submitting Entity/Collecting Entity/Monitoring Type Code/Tag Prefix Request and Review Checklist](#). The existing Tag Prefixes for submitting data are listed below:

TAG PREFIX	AGENCY	ASSOCIATED SUBMITTING ENTITY CODE
A	TEXAS A&M UNIVERSITY	AM
AC	TEXAS A&M COLEGE STATION, DEPT. OF WILDLIFE AND FISHERIES SCIENCES	AC
AG	TAMUG SEAFOOD SAFETY LAB	AG
AK	TEXAS A&M UNIVERSITY KINGSVILLE	AK
AP	ALAN PLUMMER ASSOCIATES, INC.	AP
AQ	EDWARDS AQUIFER AUTHORITY	AQ
AU	CITY OF AUSTIN	AU
B	IBWC	IB
BA	IBWC AMISTAD OFFICE	IB
BC	CITY OF BOERNE	BC

TAG PREFIX	AGENCY	ASSOCIATED SUBMITTING ENTITY CODE
BD	IBWC AMERICAN DAM	IB
BF	IBWC FALCON OFFICE	IB
BL	IBWC LAREDO OFFICE	IB
BM	IBWC MERCEDES OFFICE	IB
BP	IBWC PRESIDIO OFFICE	IB
BR	BRAZOS RIVER AUTHORITY	BR
BS	BARTON SPRINGS – EDWARDS AQUIFER CONSERVATION DISTRICT	BS
BU	BAYLOR UNIVERSITY	BU
C	CRMWA CHEMICAL	CR
CB	CONRAD BLUCHER INSTITUTE FOR SURVEYING & SCIENCE	CB
CL	CADDO LAKE INSTITUTE	CL
CY	NORTHEAST TEXAS MUNICIPAL WATER DISTRICT	NT
D	CORPS OF ENGINEERS	CE

TAG PREFIX	AGENCY	ASSOCIATED SUBMITTING ENTITY CODE
EA	EA ENGINEERING	EA
EC	ESPEY CONSULTANTS, INC.	EI
GB	GUADALUPE/BLANCO RIVER AUTHORITY	GB
H	TEXAS DEPARTMENT OF HEALTH	HD
HP	CITY OF HOUSTON	HO
I	HOUSTON-GALVESTON AREA COUNCIL	HG
J	SABINE RIVER AUTHORITY	SR
JM	JAMES MIERTSCHIN AND ASSOCIATES	JM
K	ANGELINA-NECHES RIVER AUTHORITY	AN
KI	CITY OF KILLEEN	KI
L	LOWER COLORADO RIVER AUTHORITY	LC
LN	LAVACA NAVIDAD RIVER AUTHORITY	LN
M	LOWER NECHES VALLEY AUTHORITY	LV

TAG PREFIX	AGENCY	ASSOCIATED SUBMITTING ENTITY CODE
N	UPPER NECHES RIVER MUNICIPAL WATER AUTHORITY	UN
O	NUECES RIVER AUTHORITY/NUECES COASTAL	NR
P	TEXAS PARKS & WILDLIFE	PW
PA	PATRICK BAYOU TMDL LEAD ORGANIZATION	PA
PB	PBS&J	PB
PE	PARSONS ENGINEERING SCIENCE	PE
PF	TCEQ PROFILE TAG IDs BEFORE TRACS	WC
PR	TCEQ PROFILE TAG IDs AFTER TRACS	WC
Q	TCEQ QUALITY ASSESSMENT (Central Office field)	WC
R	TCEQ REGIONAL FIELD DATA	WC
RR	RED RIVER AUTHORITY	RR
SA	SAN ANTONIO RIVER AUTHORITY	SA
T	TEXAS WATCH	TW



TAG PREFIX	AGENCY	ASSOCIATED SUBMITTING ENTITY CODE
TA	TEXAS INSTITUTE FOR APPLIED ENVIRONMENTAL RESEARCH	TA
TG	TRINITY RIVER AUTHORITY/GRAPEVINE (not active)	TR
TH	TETRA TECH, INC.	TH
TI	TEXAS RIVER SYSTEMS INSTITUTE – TEXAS STATE UNIVERSITY	TI
TR	TRINITY RIVER AUTHORITY	TR
TS	TEXAS ENGINEERING EXPERIMENTAL STATION (SERF)	TS
TT	TEXAS STATE TECHNOLOGICAL COLLEGE	TT
TX	TEXAS STATE SOIL AND WATER CONSERVATION BOARD	TX
U	UNITED STATES GEOLOGICAL SURVEY (USGS)	GS
UC	UPPER COLORADO RIVER AUTHORITY	UC
UG	UPPER GUADALUPE RIVER AUTHORITY	GB
UH	UNIVERSITY OF HOUSTON	UH
UM	UNIVERSITY OF TEXAS MARINE SCIENCE INSTITUTE	UM

TAG PREFIX	AGENCY	ASSOCIATED SUBMITTING ENTITY CODE
UR	URS CORPORATION	UR
W	SULPHUR RIVER AUTHORITY	SU
X	TCEQ WHITE DATA FORMS (HISTORICAL)	WC
<b>Z</b>	TCEQ OLD DATA	WC

## ***Chapter 6 - Commonly Used Parameter Codes***

The most common parameter codes reported for various types of sampling are provided in this chapter. Due to the evolving nature of SWQM, the parameter codes listed are subject to change. Any entity submitting data to the TCEQ must verify they are using the most current TCEQ parameter codes. Parameter codes can be viewed online at <http://www.tceq.state.tx.us/compliance/monitoring/crp/data/storet.html>.

### **Field Data**

[Refer to the SWQM Procedures Manual, Volume I: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue \(most current version\), Chapter 3, for the sampling procedures specific to field and flow data.](#)

FIELD	Parameter Code
WATER TEMPERATURE (°C)	00010
PH (standard units)	00400
DISSOLVED OXYGEN (mg/L)	00300
SPECIFIC CONDUCTANCE (µmhos/cm @ 25 °C)	00094
TRANSPARENCY, SECCHI DISC (meters) **Important parameter for reservoir ranking	00078
DAYS SINCE PRECIPITATION EVENT (days)	72053
SALINITY - ppt (tidal waters only)	00480
CHLORINE, TOTAL RESIDUAL (mg/L) (downstream of WWTPs)	50060
FLOW SEVERITY:1=No Flow, 2=Low, 3=Normal, 4=Flood, 5=High, 6=Dry	01351
INSTANTANEOUS STREAM FLOW (cfs)	00061
FLOW METHOD 1=Flow Gage, 2=Electronic, 3=Mechanical, 4=Weir/Flume, 5=Doppler	89835
RESERVOIR STAGE (feet above mean sea level)	00052
RESERVOIR PERCENT FULL (%)	00053

## Bacteria Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 4, for the sampling procedures specific to bacteria data.](#)

BACTERIA	Parameter Code
FECAL COLIFORM (colonies/100 mL)	31613
FECAL COLIFORM, MEMBR FILTER, M-FC BROTH, (#/100ML)	31616
E. COLI, mTec ( #/100 mL) (freshwater only)	31648
E. COLI, IDEXX-Colilert (MPN/100 mL) Note: If reporting 31699, also report value for 31704	31699
E. COLI, COLILERT, IDEXX, HOLDING TIME (hours)	31704
E. COLI, NA + MUG OR EA + MUG, 24 HRS, 35 DEGREE ( #/100 mL) (freshwater only)	31700
ENTEROCOCCI (#/100 mL) (marine only)	31649
ENTEROCOCCI, IDEXX-Enterolert (MPN/100 mL)	31701

## 24 Hour Field Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 3, for the sampling procedures specific to 24-hour field data.](#)

24HR	Parameter Code
DISSOLVED OXYGEN, 24-HOUR AVG (mg/L)	89857
DISSOLVED OXYGEN, # MEASUREMENTS DURING 24-HR	89858
DISSOLVED OXYGEN, 24-HOUR MAX.(mg/L)	89856
DISSOLVED OXYGEN, 24-HOUR MIN. (mg/L)	89855
WATER TEMPERATURE, 24-HR AVERAGE (°C)	00209
WATER TEMPERATURE, # OF MEASUREMENTS DURING 24-HRS	00221

WATER TEMPERATURE, MAXIMUM 24-HR (°C)	00210
WATER TEMPERATURE, MINIMUM 24-HR (°C)	00211
SPECIFIC CONDUCTANCE, 24-HR AVERAGE (µS/cm)	00212
SPECIFIC CONDUCTANCE, # OF MEASUREMENTS DURING 24-HRS	00222
SPECIFIC CONDUCTANCE, MAXIMUM 24-HR (µS/cm)	00213
SPECIFIC CONDUCTANCE, MINIMUM 24-HR (µS/cm)	00214
pH, # OF MEASUREMENTS DURING 24-HRS	00223
pH, MAXIMUM 24-HR (s.u.)	00215
pH, MINIMUM 24-HR (s.u.)	00216
SALINITY, 24-HR AVERAGE (ppt)	00218
SALINITY, # OF MEASUREMENTS DURING 24-HRS	00220
SALINITY, MAXIMUM 24-HR (ppt)	00217
SALINITY, MINIMUM 24-HR (ppt)	00219

## Conventional Data (Inorganics and Nutrients)

[Refer to the SWQM Procedures Manual, Volume I, Chapter 5, for the sampling procedures specific to routine water chemistry data.](#)

CONVENTIONAL PARAMETERS - INORGANIC	Parameter Code
ALKALINITY, TOTAL (mg/L as CaCO <sub>3</sub> )	00410
RESIDUE, TOTAL NONFILTRABLE (mg/L)	00530
RESIDUE, VOLATILE NONFILTRABLE (mg/L)	00535
RESIDUE, TOTAL FILTRABLE (DRIED AT 180° C) (mg/L)	70300
CHLORIDE (mg/L as Cl)	00940
SULFATE (mg/L as SO <sub>4</sub> )	00945

TOTAL ORGANIC CARBON(mg/L as C)	00680
CONVENTIONAL PARAMETERS - NUTRIENTS	Parameter Code
NITRATE NITROGEN, TOTAL (mg/L as N)	00620
NITRITE NITROGEN, TOTAL (mg/L as N)	00615
NITRITE + NITRATE-NITROGEN (mg/L as N)	00630
AMMONIA-NITROGEN TOTAL (mg/L as N)	00610
ORTHOPHOSPHATE PHOSPHORUS FLDFLT <15MIN (mg/L as P)	00671
ORTHOPHOSPHATE PHOSPHORUS FILTER >15MIN (mg/L as P)	70507
TOTAL PHOSPHORUS (mg/L as P)	00665
TOTAL KJELDAHL NITROGEN (mg/L as N)	00625
CHLOROPHYLL-A, SPECTROPHOTOMETRIC (µg/L)	32211
CHLOROPHYLL-A, FLUOROMETRIC (µg/L)	70953
PHEOPHYTIN-A, SPECTROPHOTOMETRIC (µg/L)	32218
PHEOPHYTIN-A, FLUOROMETRIC (µg/L)	32213

## Routine Metals in Water Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 5, for the sampling procedures specific to metals in water data.](#)

METALS IN WATER	Parameter Code
Dissolved	
ALUMINUM, DISSOLVED (µg/L as Al)	01106
ARSENIC, DISSOLVED (µg/L as As)	01000
CADMIUM , DISSOLVED (µg/L as Cd)	01025
CALCIUM, DISSOLVED (µg/L as Ca)	00915

CHROMIUM, DISSOLVED (µg/L as Cr)	01030
COPPER, DISSOLVED (µg/L as Cu)	01040
DISSOLVED HARDNESS, calc. (mg/L as CaCO3)	46570
IRON, DISSOLVED (µg/L as Fe)	01046
LEAD, DISSOLVED (µg/L as Pb)	01049
MAGNESIUM, DISSOLVED (µg/L as Mg)	00925
MANGANESE, DISSOLVED (µg/L as Mn)	01056
NICKEL, DISSOLVED (µg/L as Ni)	01065
POTASSIUM, DISSOLVED (µg/L as K)	00935
SILVER, DISSOLVED (µg/L as Ag)	01075
SODIUM, DISSOLVED (mg/L as Na)	00930
ZINC, DISSOLVED (µg/L as Zn)	01090
Total	
ALUMINUM, TOTAL (µg/L as Al)Total	01105
ARSENIC, TOTAL (µg/L as As)Total	01002
CADMIUM, TOTAL (µg/L as Cd)	01027
CALCIUM, TOTAL (mg/L as Ca)	00916
CHROMIUM, TOTAL (µg/L as Cr)	01034
COPPER, TOTAL (µg/L as Cu)	01042
IRON, TOTAL (µg/L as Fe)	01045
LEAD, TOTAL (µg/L as Pb)	01051
MAGNESIUM, TOTAL (mg/L as Mg)	00927
MANGANESE, TOTAL (µg/L as Mn)	01055
MERCURY, TOTAL, EPA 1631 (µg/L as Hg)	71959
NICKEL, TOTAL (µg/L as Ni)	01067

POTASSIUM, TOTAL (µg/L as K)	00937
SELENIUM, TOTAL (µg/L as Se))	01147
SILVER, TOTAL (µg/L as Ag)	01077
SODIUM, TOTAL (mg/L as Na)	00929
TOTAL HARDNESS, calc. (mg/L as CaCO <sub>3</sub> )	82394
TOTAL HARDNESS, by titration (mg/L as CaCO <sub>3</sub> )	00900
ZINC, TOTAL (µg/L as Zi)	01092

## Organics in Water Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 5, for the sampling procedures specific to organics in water data.](#)

ORGANICS IN WATER (µg/L)	Parameter Code
Semivolatile	
PHENOL (C <sub>6</sub> H <sub>5</sub> OH)-SINGLE COMPOUND	34694
2-CHLOROPHENOL	34586
2-NITROPHENOL	34591
2,4-DICHLOROPHENOL	34601
PARACHLOROMETA CRESOL	34452
2,4,5-TRICHLOROPHENOL	77687
2,4,6-TRICHLOROPHENOL	34621
2,4-DIMETHYLPHENOL	34606
2,4-DINITROPHENOL	34616
4-NITROPHENOL	34646
DNOC (4,6-DINITRO-ORTHO-CRESOL)	34657



PCP (PENTACHLOROPHENOL)	39032
N-NITROSODIMETHYLAMINE	34438
BIS (2-CHLOROETHYL) ETHER	34273
1,3-DICHLOROBENZENE	34566
1,4-DICHLOROBENZENE	34571
1,2-DICHLOROBENZENE	34536
BIS (2-CHLOROISOPROPYL) ETHER	34283
HEXACHLOROETHANE	34396
N-NITROSO-DI-N-PROPYLAMINE	34428
NITROBENZENE	34447
ISOPHORONE	34408
BIS (2-CHLOROETHOXY) METHANE	34278
1,2,4-TRICHLOROBENZENE	34551
NAPHTHALENE	34696
HEXACHLOROBUTADIENE	34391
HEXACHLOROCYCLOPENTADIENE	34386
2-CHLORONAPHTHALENE	34581
ACENAPHTHYLENE	34200
DIMETHYL PHTHALATE	34341
2,6-DINITROTOLUENE	34626
ACENAPHTHENE	34205
2,4-DINITROTOLUENE	34611
FLUORENE	34381
4-CHLOROPHENYL PHENYL ETHER	34641
DIETHYL PHTHALATE	34336

N-NITROSODIPHENYLAMINE	34433
1,2-DIPHENYLHYDRAZINE	34346
4-BROMOPHENYL PHENYL ETHER	34636
PHENANTHRENE	34461
ANTHRACENE	34220
DI-N-BUTYL PHTHALATE	39110
FLUORANTHENE	34376
PYRENE	34469
BENZIDINE	39120
N-BUTYL BENZYL PHTHALATE	34292
CHRYSENE	34320
BENZO(A)ANTHRACENE (1,2-BENZANTHRACENE)	34526
3,3'-DICHLOROBENZIDINE	34631
BIS(2-ETHYLHEXYL) PHTHALATE	39100
DI-N-OCTYL PHTHALATE	34596
BENZO(B)FLUORANTHENE	34230
BENZO(K)FLUORANTHENE	34242
BENZO-A-PYRENE	34247
INDENO (1,2,3-CD) PYRENE	34403
1,2,5,6-DIBENZANTHRACENE	34556
BENZO(GHI)PERYLENE (1,12-BENZOPERYLENE)	34521
CRESOL	79778
HEXACHLOROPHENE	88813
ETHANAMINE (N-ETHYL-N-NITROSO)	73611
N-NITROSODI-N-BUTYL AMINE	73609

PYRIDINE	77045
1,2,4,5-TETRACHLOROBENZENE	77734
Volatile	
CHLOROMETHANE	30201
BROMOMETHANE	30202
VINYL CHLORIDE	39175
CHLOROETHANE	34311
ACRYLONITRILE	34215
CHLOROFORM	32106
METHYLENE CHLORIDE	34423
1,1-DICHLOROETHYLENE	34501
1,1-DICHLOROETHANE	34496
TRANS-1,2-DICHLOROETHENE	34546
1,2-DICHLOROETHANE	34531
CARBON TETRACHLORIDE	32102
BROMODICHLOROMETHANE	32101
BENZENE , HEXADECONE EXTR.	34030
DIBROMOCHLOROMETHANE	32105
1,1,1-TRICHLOROETHANE	34506
1,2-DICHLOROPROPANE	34541
TRANS-1,3-DICHLOROPROPENE	34699
CIS-1,3-DICHLOROPROPENE	34704
1,1,2-TRICHLOROETHANE	34511
2-CHLOROETHYL VINYL ETHER	34576
TRICHLOROETHYLENE	39180

BROMOFORM	32104
TOLUENE, HEXADECONE EXTR.	34010
ETHYLBENZENE	34371
1,1,2,2-TETRACHLOROETHANE	34516
TETRACHLOROETHYLENE	34475
CHLOROBENZENE	34301
XYLENE	81551
BIS (CHLOROMETHYL) ETHER	34268
1,2-DIBROMOETHANE	77651
METHYL-TERT-BUTYL ETHER (MTBE)	46491
Pesticides (In whole water)	
DDT	39370
DDD	39360
DDE	39365
ALDRIN	39330
DIELDRIN	39380
ENDRIN	39390
CHLORDANE, (TECH MIX & METABS)	39350
ALACHLOR	77825
HEPTACHLOR	39410
HEPTACHLOR EPOXIDE	39420
METHOXYCHLOR	39480
METOLACHLOR	82612
GAMMA-BHC (LINDANE)	39782
TOXAPHENE	39400

SIMAZINE	39055
ATRAZINE (AA TREX)	39630
CYANAZINE (dissolved)	04041
HEXACHLOROBENZENE	39700
ALPHA BENZENE HEXACHLORIDE (ALPHA-BHC)	39337
BETA BENZENE HEXACHLORIDE (BETA-BHC)	39338
DELTA BENZENE HEXACHLORIDE (DELTA-BHC)	34259
DICOFOL (KELTHANE)	39780
MIREX	39755
PENTACHLOROBENZENE	77793
MALATHION	39530
PARATHION	39540
DIAZINON	39570
2,4-D	39730
2,4,5-T	39740
SILVEX	39760
DIURON (KARMEX)	39650
DURSBAN (CHLOROPYRIFOS)	81403
ENDOSULFAN (ALPHA)	34361
ENDOSULFAN (BETA)	34356
ENDOSULFAN SULFATE	34351
DEMETON	39560
GUTHION	39580
SEVIN	39750
PCB-1242	39496

PCB-1254	39504
PCB-1221	39488
PCB-1232	39492
PCB-1248	39500
PCB-1260	39508
PCB-1016	34671
TOTAL PCBS	39516
BENZENE HEXACHLORIDE (BHC)	20464

## Metals in Sediment Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 6, for the sampling procedures specific to metals in sediment data.](#)

METALS IN SEDIMENT (mg/kg-dry weight)	Parameter Code
ALUMINUM (Al)	01108
ARSENIC (As)	01003
BARIUM (Ba)	01008
CADMIUM (Ca)	01028
CHROMIUM (Cr)	01029
COPPER (Cu)	01043
LEAD (Pb)	01052
MANGANESE (Mn)	01053
MERCURY (Hg)	71921
NICKEL (Ni)	01068
SELENIUM (Se)	01148

SILVER (Ag)	01078
ZINC (Zn)	01093
Sediment Conventional	
OIL & GREASE, FREON EXTR-GRAV METH (mg/kg)	00557
OIL & GREASE, FREON EXTR-IR METH (mg/kg)	00561
PERCENT SOLIDS IN SEDIMENT, DRY WEIGHT	81373
TOTAL ORGANIC CARBON, DRY WEIGHT (mg/kg)	81951
SEDIMENT PARTICLE SIZE <0.0039 CLAY % DRY WT	82009
SEDIMENT PARTICLE SIZE 0.0039-0.0625 SILT % DRY WT	82008
SEDIMENT PARTICLE SIZE 0.0625-2MM SAND % DRY WT	89991
SEDIMENT PARTICLE SIZE >2.0MM GRAVEL % DRY WT	80256

## Organics in Sediment Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 6, for the sampling procedures specific to organics-in-sediment data.](#)

ORGANICS IN SEDIMENT (µg/kg-dry weight)	Parameter Code
Semivolatile	
PHENOL(C <sub>6</sub> H <sub>5</sub> OH)-SINGLE COMPOUND	34695
2-CHLOROPHENOL	34589
2-NITROPHENOL	34594
2,4-DICHLOROPHENOL	34604
PARACHLOROMETA CRESOL	34455
2,4,5-TRICHLOROPHENOL	78401
2,4,6-TRICHLOROPHENOL	34624

2,4-DIMETHYLPHENOL	34609
2,4-DINITROPHENOL	34619
4-NITROPHENOL	34649
DNOC (4,6-DINITRO-ORTHO-CRESOL)	34660
PCP (PENTACHLOROPHENOL )	39061
N-NITROSODIMETHYLAMINE	34441
BIS (2-CHLOROETHYL) ETHER	34276
1,3-DICHLOROBENZENE	34569
1,4-DICHLOROBENZENE	34574
1,2-DICHLOROBENZENE	34539
BIS (2-CHLOROISOPROPYL) ETHER	34286
HEXACHLOROETHANE	34399
N-NITROSODI-N-PROPYLAMINE	34431
NITROBENZENE	34450
ISOPHORONE	34411
BIS (2-CHLOROETHOXY) METHANE	34281
1,2,4-TRICHLOROBENZENE	34554
NAPHTHALENE	34445
HEXACHLOROBUTADIENE	39705
HEXACHLOROCYCLOPENTADIENE	34389
2-CHLORONAPHTHALENE	34584
ACENAPHTYLENE	34203
DIMETHYL PHTHALATE	34344
2,6-DINITROTOLUENE	34629
ACENAPHTHENE	34208



2,4-DINITROTOLUENE	34614
FLUORENE	34384
4-CHLOROPHENYL PHENYL ETHER	34644
DIETHYL PHTHALATE	34339
N-NITROSODIPHENYLAMINE	34436
1,2-DIPHENYLHYDRAZINE	34349
4-BROMOPHENYL PHENYL ETHER	34639
PHENANTHRENE	34464
ANTHRACENE	34223
DI-N-BUTYL PHTHALATE	39112
FLUORANTHENE	34379
PYRENE	34472
BENZIDINE	39121
N-BUTYL BENZYL PHTHALATE	34295
CHRYSENE	34323
BENZO(A)ANTHRACENE (1,2-BENZANTHRACENE)	34529
3,3'-DICHLOROBENZIDINE	34634
BIS(2-ETHYLHEXYL) PHTHALATE	39102
DI-N-OCTYL PHTHALATE	34599
BENZO(B)FLUORANTHENE	34233
BENZO(K)FLUORANTHENE	34245
BENZO-A-PYRENE	34250
INDENO (1,2,3-CD) PYRENE	34406
1,2,5,6-DIBENZANTHRACENE	34559
BENZO(GHI)PERYLENE (1,12-BENZOPERYLENE)	34524

CRESOL	88811
HEXACHLOROPHENE	73120
N-NITROSODIETHYLAMINE	88817
N-NITROSO-DI-N-BUTYLAMINE	73159
PYRIDINE	88823
1,2,4,5-TETRACHLOROBENZENE	88826
Pesticides (In bottom deposits)	
DDT	39373
DDD	39363
DDE	39368
ALDRIN	39333
DIELDRIN	39383
ENDRIN	39393
CHLORDANE (TECH MIX & METABS)	39351
ALACHLOR	75050
HEPTACHLOR EPOXIDE	39413
METHOXYCHLOR	39481
GAMMA-BHC (LINDANE)	39783
TOXAPHENE	39403
HEXACHLOROBENZENE	39701
BHC, ALPHA ISOMER	39076
B-BHC-BETA	34257
DELTA BENZENE HEXACHLORIDE (DELTA-BHC)	34262
DICOFOL (KELTHANE)	79799
MIREX	79800

PENTACHLOROBENZENE	39118
MALATHION	39531
PARATHION	39541
DIAZINON	39571
2,4-D	39731
2,4,5-T	39741
SILVEX	39761
DIURON (KARMEX)	73030
DURSBAN	81404
ENDOSULFAN (ALPHA)	34364
ENDOSULFAN (BETA)	34359
ENDOSULFAN SULFATE	34354
DEMETON (SYSTOX)	82400
GUTHION	39581
SEVIN	81818
PCB-1242	39499
PCB-1254	39507
PCB-1221	39491
PCB-1232	39495
PCB-1248	39503
PCB-1260	39511
PCB-1016	39514
TOTAL PCBS	39519
BENZENE HEXACHLORIDE (BHC)	81323

## Fish Tissue Analysis Data

[Refer to the SWQM Procedures Manual, Volume I, Chapter 7, for the sampling procedures specific to fish tissue analysis data.](#)

FISH TISSUE ANALYSIS (mg/kg-wet weight)	Parameter Code
Tissue	
FISH SPECIES, USE EPA 3-DIGIT SPECIES CODE	74990
ANATOMICAL PART, EPA STORET NUMERIC CODE	74995
NUMBER OF INDIVIDUALS IN COMPOSITE TISSUE SAMPLE	81614
NUMBER OF SPECIES IN COMPOSITE TISSUE SAMPLE (ALWAYS REPORT A 1)	81615
MINIMUM SAMPLE LENGTH IN A COMPOSITE, MILLIMETERS	00280
MAXIMUM SAMPLE LENGTH IN A COMPOSITE, MILLIMETERS	00281
SAMPLE LENGTH IN MILLIMETERS (IF ONE FISH)	00039
SAMPLE WEIGHT IN GRAMS (IF ONE FISH)	00019
SEX (1-MALE, 2-FEMALE, 3-MIXED, 4-UNKNOWN)	84100
Metals in Tissue	
ARSENIC	01004
CADMIUM	71940
CHROMIUM	71939
COPPER	71937
LEAD	71936
MERCURY	71930
SELENIUM	01149
Semivolatile Organics in Tissue	
PERCENT FAT HEXANE EXTRACTION (LIPIDS)	39105

PHENOL	34468
2-CHLOROPHENOL	34590
2-NITROPHENOL	34595
2,4-DICHLOROPHENOL	34605
PARACHLOROMETA CRESOL	34456
2,4,5,-TRICHLOROPHENOL	88809
2,4,6-TRICHLOROPHENOL	34625
2,4-DIMETHYLPHENOL	34610
2,4-DINITROPHENOL	34620
4-NITROPHENOL	34650
DNOC (4,6-DINITRO-ORTHO-CRESOL)	34661
PCP (PENTACHLOROPHENOL)	39060
N-NITROSODIMETHYLAMINE	34442
BIS (2-CHLOROETHYL) ETHER	34277
1,3-DICHLOROBENZENE	34570
1,4-DICHLOROBENZENE	34575
1,2-DICHLOROBENZENE	34540
BIS (2-CHLOROISOPROPYL) ETHER	34287
HEXACHLOROETHANE	34400
N-NITROSODI-N-PROPYLAMINE	34432
NITROBENZENE	34451
ISOPHORONE	34412
BIS (2-CHLOROETHOXY) METHANE	34282
1,2,4-TRICHLOROBENZENE	34555
NAPHTHALENE	34446

HEXACHLOROBUTADIENE	34395
HEXACHLOROCYCLOPENTADIENE	34390
2-CHLORONAPHTHALENE	34585
ACENAPHTHYLENE	34204
DIMETHYL PHTHALATE	34345
2,6-DINITROTOLUENE	34630
ACENAPHTHENE	34209
2,4-DINITROTOLUENE	34615
FLUORENE	34385
4-CHLOROPHENYL PHENYL ETHER	34645
DIETHYL PHTHALATE	34340
N-NITROSODIPHENYLAMINE	34437
1,2-DIPHENYLHYDRAZINE	34350
4-BROMOPHENYL PHENYL ETHER	34640
PHENANTHRENE	34465
ANTHRACENE	34224
DI-N-BUTYL PHTHALATE	34683
FLUORANTHENE	34380
PYRENE	34473
BENZIDINE	34241
N-BUTYL BENZYL PHTHALATE	34296
CHRYSENE	34324
BENZO(A)ANTHRACENE (1,2-BENZANTHRACENE)	34530
3,3'-DICHLOROBENZIDINE	34635
BIS(2-ETHYLHEXYL)PHTHALATE	39099

DI-N-OCTYL PHTHALATE	34600
BENZO(B)FLUORANTHENE	34234
BENZO(K)FLUORANTHENE	34246
BENZO-A-PYRENE	34251
INDENO(1,2,3-CD) PYRENE	34407
1,2,5,6-DIBENZANTHRACENE	34560
BENZO(GHI)PERYLENE (1,12-BENZOPERYLENE)	34525
CRESOL	88812
HEXACHLOROPHENE	88815
N-NITROSODIETHYLAMINE	88818
N-NITROSO-DI-N-BUTYLAMINE	88821
PYRIDINE	88824
1,2,4,5-TETRACHLOROBENZENE	88827
DIOXINS/FURANS TOTAL TEC	20463
BROMOCHLOROMETHANE	20465
DIBROMOMETHANE	20466
Pesticides in Tissue	
DDT, SUM ANALOGS IN TISSUE	39376
DDD	81897
DDE	81896
ALDRIN	34680
DIELDRIN	39406
ENDRIN	34685
CHLORDANE (TECH MIX & METABS)	34682
HEPTACHLOR	34687

HEPTACHLOR EPOXIDE	34686
METHOXYCHLOR (UG/G)	81644
GAMMA-BHC (LINDANE)	39785
TOXAPHENE	34691
HEXACHLOROBENZENE	34688
BHC-ALPHA ISOMER (UG/G)	39074
B-BHC-BETA	34258
DELTA BENZENE HEXACHLORIDE	34263
DICOFOL (KELTHANE)	85684
MIREX	81645
PENTACHLOROBENZENE	85679
MALATHION	39534
PARATHION	81810
DIAZINON	81806
2,4-D	88830
2,4,5-T	88833
SILVEX (2,4,5-TP)	39764
DIURON (KARMEX)	88844
DURSBAN	81807
ENDOSULFAN, ALPHA	34365
ENDOSULFAN SULFATE	34355
DEMETON (SYSTOX)	82401
GUTHION	81802
SEVIN (CARBARYL)	81899
PCB-1242	34689



PCB-1254	34690
PCB-1221	34664
PCB-1232	34667
PCB-1248	34669
PCB-1260	34670
PCB-1016	34674
TOTAL PCBS	39515
PCB-1268	20467
BENZENE HEXACHLORIDE (BHC)	81826

## EPA Species Numeric Code

For use with parameter code 74990, Fish Species: enter the EPA Species Code as the value.

Common Name	Scientific Name	EPA Species Code	TCEQ Parameter Code
Alligator gar	Lepisosteus spatula	1	98344
American eel	Anguilla rostrata	76	98361
Arkansas River shiner	Notropis girardi	361	98472
Atlantic stingray	Dasyatis sabina	144	98318
Banded pygmy sunfish	Elassoma zonatum	418	99113
Bantam sunfish	Lepomis symmetricus	416	99102
Bay anchovy	Anchoa mitchilli	166	98412
Bayou killifish	Fundulus pulvereus	682	98699
Bigmouth buffalo	Ictiobus cyprinella	3	98508
Bigscale log perch	Percina macrolepida	580	99069

Black buffalo	<i>Ictiobus niger</i>	105	98509
Black bullhead	<i>Ameirus melas</i>	4	98563
Black crappie	<i>Pomoxis nigromaculatus</i>	5	99109
Black drum	<i>Pogonias cromis</i>	199	98970
Blackside darter	<i>Percina maculata</i>	436	98540
Blackspot shiner	<i>Notropis atrocaudalis</i>	451	98462
Blackspotted topminnow	<i>Fundulus olivaceus</i>	406	98678
Blackstripe topminnow	<i>Fundulus notatus</i>	404	98677
Blacktail redhorse	<i>Moxostoma poecilurum</i>	391	98515
Blacktail shiner	<i>Cyprinella venustus</i>	377	98487
Blue catfish	<i>Ictalurus furcatus</i>	67	98562
Bluegill sunfish	<i>Lepomis macrochirus</i>	8	99097
Blue sucker	<i>Cycleptus elongatus</i>	386	98505
Bluntnose darter	<i>Etheostoma chlorosomum</i>	547	99075
Bowfin	<i>Amia calva</i>	68	98347
Brook silverside	<i>Labidesthes sicculus</i>	88	98734
Bullhead minnow	<i>Pimephales vigilax</i>	384	98498
Chain pickerel	<i>Esox niger</i>	14	98405
Channel catfish	<i>Ictalurus punctatus</i>	16	98561
Chesnut lamprey	<i>Ichthyomyzon castaneus</i>	330	99297
Common carp	<i>Cyprinus carpio</i>	12	98437
Common shiner	<i>Notropis cornutus</i>	89	98470
Common stoneroller	<i>Campostoma anomalum</i>	335	98502
Creek chub	<i>Semotilus atromaculatus</i>	90	98443

Creek chubsucker	Erimyzon oblongus	387	98519
Cypress darter	Etheostoma proeliare	426	99083
Cypress minnow	Hybognathus hayi	339	98493
Dollar sunfish	Lepomis marginatus	414	99098
Dusky darter	Percina sciera	440	98541
Emerald shiner	Notropis atherinoides	77	98461
Fathead minnow	Pimephales promelas	382	98497
Flathead catfish	Pylodictus olivaris	489	98570
Flathead chub	Platygobio gracilis	345	98447
Flier	Centrarchus macropterus	412	99111
Freckled madtom	Noturus nocturnus	400	98575
Freshwater drum	Aplodinotus grunniens	20	98958
Gafftopsail catfish	Bagre marinus	200	98557
Ghost shiner	Notropis buchanani	354	98467
Gizzard shad	Dorosoma cepedianum	21	98430
Golden redhorse	Moxostoma erythrurum	390	98514
Golden shiner	Notemigonus crysoleucas	22	98441
Golden topminnow	Fundulus chrysotus	403	98694
Goldfish	Carassius auratus	24	98439
Goldstripe darter	Etheostoma parvipinne	425	99082
Grass carp	Ctenopharyngodon idellus	337	98528
Green sunfish	Lepomis cyanellus	25	99094
Harlequin darter	Etheostoma histrio	420	99080
Hogchoker	Trinectes maculatus	522	99218
Ironcolor shiner	Notropis chalybaeus	356	98468

Ladyfish	Elops saurus	486	98352
Lake chubsucker	Erimyzon sucetta	387	98520
Largemouth bass	Micropterus salmoides	31	99090
Log perch	Percina caprodes	433	99068
Longear sunfish	Lepomis megalotis	72	99099
Longnose dace	Rhinichthys cataractae	108	98455
Longnose gar	Lepisosteus osseus	32	98341
Mimic shiner	Notropis volucellus	378	98488
Mosquitofish	Gambusia affinis	407	98713
Mozambique tilapia	Tilapia mossambica	54	98565
Mud darter	Etheostoma asprigene	544	99074
Northern pike	Esox lucius	36	98406
Orangebelly darter	Etheostoma radiosum	428	99084
Orangespotted sunfish	Lepomis humilus	413	99096
Orangethroat darter	Etheostoma spectabile	429	99085
Paddlefish	Polyodon spathula	106	98335
Pallid shiner	Notropis amnis	350	98460
Pinfish	Lagodon rhomboides	207	99153
Pirate perch	Aphredoderus sayanus	410	98773
Plains killifish	Fundulus zebrinus	455	98729
Plains minnow	Hybognathus placitus	341	98495
Pugnose minnow	Opsopoeodus emiliae	358	98452
Rainwater killifish	Lucania parva	539	98689
Redbreast sunfish	Lepomis auritus	70	99093
Red drum	Sciaenops ocellata	202	98962

Redear sunfish	<i>Lepomis microlophus</i>	40	99100
Redfin pickerel	<i>Esox americanus</i>	168	98404
Redfin shiner	<i>Lythrurus umbratilis</i>	376	98486
Red River shiner	<i>Notropis bairdi</i>	351	98463
Red shiner	<i>Cyprinella lutrensis</i>	363	98474
Ribbon shiner	<i>Lythrurus fumeus</i>	359	98471
Rio Grande cichlid	<i>Cichlasoma cyanoguttatum</i>	686	98953
River carpsucker	<i>Carpionodes carpio</i>	42	98511
River darter	<i>Percina shumardi</i>	441	99168
River shiner	<i>Notropis blennius</i>	352	98464
Rock bass	<i>Ambloplites rupestris</i>	43	99106
Sabine shiner	<i>Notropis sabinae</i>	371	98481
Sand seatrout	<i>Cynoscion arenarius</i>	134	98973
Sand shiner	<i>Notropis stramineus</i>	452	98484
Sauger	<i>Stizostedion canadense</i>	559	99057
Scaly sand darter	<i>Ammocrypta vivax</i>	542	99072
Sheepshead	<i>Archosargus probatocephalus</i>	78	99155
Shortnose gar	<i>Lepisosteus platostomus</i>	107	98342
Shovelnose sturgeon	<i>Scaphirynchus platyrhynchus</i>	102	98337
Silverband shiner	<i>Notropis shumardi</i>	372	98482
Silver chub	<i>Macrhybopsis storeriana</i>	346	98448
Silver perch	<i>Bairdiella chrysoura</i>	485	98960
Silvery minnow	<i>Hybognathus nuchalis</i>	340	98494
Skipjack herring	<i>Alosa chrysochloris</i>	26	98418
Slough darter	<i>Etheostoma gracile</i>	176	99078

Smallmouth bass	<i>Micropterus dolomieu</i>	47	99091
Smallmouth buffalo	<i>Ictiobus bubalus</i>	48	98507
Southern flounder	<i>Paralichthys lethostigma</i>	201	99246
Speckled chub	<i>Macrhybopsis aestivalis</i>	342	98449
Spot	<i>Leiostomus xanthurus</i>	181	98964
Spotted bass	<i>Micropterus punctulatus</i>	49	99089
Spotted gar	<i>Lepisosteus oculatus</i>	50	98340
Spotted seatrout	<i>Cynoscion nebulosus</i>	142	98974
Spotted sucker	<i>Minytrema melanops</i>	51	98517
Spotted sunfish	<i>Lepomis punctatus</i>	415	99101
Starhead topminnow	<i>Fundulus dispar</i>	405	98693
Striped anchovy	<i>Anchoa hepsetus</i>	532	98410
Striped bass	<i>Morone saxatilis</i>	52	99165
Striped killifish	<i>Fundulus similis</i>	526	98700
Striped mullet	<i>Mugil cephalus</i>	53	98793
Suckermouth minnow	<i>Phenacobius mirabilis</i>	380	98457
Swamp darter	<i>Etheostoma fusiforme</i>	176	99077
Tadpole madtom	<i>Noturus gyrinus</i>	397	98574
Threadfin shad	<i>Dorosoma petenense</i>	333	98429
Walleye	<i>Stizostedion vitreum</i>	55	99058
Warmouth	<i>Lepomis gulosus</i>	56	99095
Weed shiner	<i>Notropis texanus</i>	375	98485
Western sand darter	<i>Ammocrypta clara</i>	542	99071
White bass	<i>Morone chrysops</i>	57	99163
White crappie	<i>Pomoxis annularis</i>	59	99108

Yellow bass	Morone mississippiensis	93	99164
Yellow bullhead	Ameiurus natalis	62	98564
Yellow perch	Perca flavescens	63	99062

## EPA Anatomical Numeric Code

For use with parameter code 74995, Anatomical Part: enter the EPA Anatomical Part Code as the value.

Anatomy	Anatomical Part Code	EPA Alpha Code (84007)
Stomach	5	STOM
Liver	6	LIVER
Intestine	7	INTST
Gall Bladder	8	GLBDR
Heart	11	HEART
Kidney	32	KIDNY
Bladder	37	BLADR
Spleen	43	SLPN
Scales	57	SCALE
Skin	58	SKIN
Whole Organism	59	WHORG
Brain	61	BRAIN
Male	68	MALE
Female	69	FMALE
Ovary	70	OVARY
Gills	72	GILLS

Filet	86	FILET
Edible Portion	87	EAT
Headless Whole Fish	88	HDLS
Eviscerated Whole Fish	89	EVISC
Lipid Tissue	91	LIPID
Eggs	93	EGGS
Larvae	115	LARVA

## Biological Data

[Refer to the SWQM Procedures, Volume II, for the monitoring procedures specific to biological data.](#) Parenthetical information for each sampling category below dictates how to report the biological data as a composite record as well as the composite category, composite type, and parameter code that the composite should be based on when possible.

BIOLOGICAL	Parameter Code
Nekton Texas Regional Index Summary & Metadata (Composite, Both, CN)	
BIOLOGICAL DATA (report value of 1011 for Nekton Texas Regional Index Summary & Metadata)	89888
ECOREGION LEVEL III (TEXAS ECOREGION CODE)	89961
NEKTON ORGANISMS-NONE PRESENT	98005
NUMBER OF SPECIES, FISH	98003
TOTAL NUMBER OF NATIVE CYPRINID SPECIES	98032
TOTAL NUMBER OF BENTHIC INVERTIVORE SPECIES	98052
TOTAL NUMBER OF BENTHIC FISH SPECIES	98053
TOTAL NUMBER OF SUNFISH SPECIES	98008
TOTAL NUMBER OF INTOLERANT SPECIES, FISH	98010
PERCENT INDIVIDUALS AS TOLERANT FISH SPECIES(EXCLUDING	98070



WESTERN MOSQUITOFISH)	
PERCENT OF INDIVIDUALS AS OMNIVORES, FISH	98017
PERCENT OF INDIVIDUALS AS INVERTIVORES, FISH	98021
PERCENT OF INDIVIDUALS AS PISCIVORES, FISH	98022
TOTAL NUMBER OF INDIVIDUALS SEINING	98039
TOTAL NUMBER OF INDIVIDUALS ELECTROFISHING	98040
NUMBER OF INDIVIDUALS PER SEINE HAUL	98062
NUMBER OF INDIVIDUALS PER MINUTE ELECTROFISHING	98069
PERCENT INDIVIDUALS AS NON-NATIVE FISH SPECIES (% OF COMMUNITY)	98033
PERCENT OF INDIVIDUALS WITH DISEASE OR ANOMALY	98030
NEKTON TEXAS REGIONAL IBI SCORE	98123
Nekton Electrofishing (Composite, Both, CN, 89944)	
BIOLOGICAL DATA (report value of 1012 for Nekton Electrofishing)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
ELECTROFISHING METHOD 1=BOAT 2=BACKPACK 3=TOTEBARGE	89943
ELECTROFISH EFFORT, DURATION OF SHOCKING (SEC)	89944
Nekton Seining (Composite, Both, CN, 89947)	
BIOLOGICAL DATA (report value of 1013 for Nekton Seining)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
SEINING EFFORT (# OF SEINE HAULS)	89947
COMBINED LENGTH OF SEINE HAULS (METERS)	89948
SEINING EFFORT, DURATION (MINUTES)	89949
AREA SEINED (SQ METERS)	89976
SEINE, MINIMUM MESH SIZE, AVERAGE BAR, NEKTON,IN	89930
SEINE, MAXIMUM MESH SIZE, AVG BAR, NEKTON,INCH	89931

NET LENGTH (METERS)	89941
Nekton Observation Not Captured (Composite, Both, CN)	
BIOLOGICAL DATA (report value of 1014 for Nekton Observation Not Captured)	89888
NUMBER OF SPECIES, FISH	98003
Nekton Hoop Net (Composite, Both, CN, 98077)	
BIOLOGICAL DATA (report value of 1015 for Nekton Hoop Net)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
DURATION OF DEPLOYMENT (HRS)	98077
NUMBER OF SPECIES, FISH	98003
HOOP NET WIDTH (METERS)	98124
Nekton Hook and Line (Composite, Both, CN, 89942)	
BIOLOGICAL DATA (report value of 1016 for Nekton Hook and Line)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
NET OR HOOKLINE EFFORT,DURATION IN WATER (HRS)	89942
NUMBER OF SPECIES, FISH	98003
Nekton Castnet (Composite, Both, CN, 89945)	
BIOLOGICAL DATA (report value of 1017 for Nekton Castnet)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
CASTNETTING EFFORT (# OF CASTS)	89945
NUMBER OF SPECIES, FISH	98003
Nekton Trawl (Composite, Both, CN, 89907)	
BIOLOGICAL DATA (report value of 1018 for Nekton Trawl)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
TRAWL, OTTER, DURATION (MINUTES)	89907

TRAWL, OTTER, WIDTH (M)	89953
NUMBER OF SPECIES, FISH	98003
Nekton Water Intake Screen (Composite, Both, CN, 89940)	
BIOLOGICAL DATA (report value of 1019 for Nekton Water Intake Screen)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
INTAKE SCREEN COLLECTION, DURATION IN MINUTES	89940
COOLING WATER INTAKE SCREEN(1=REVOLVNG,2=STATIC)	89951
NUMBER OF SPECIES, FISH	98003
Nekton Gill Net (Composite, Both, CN, 98077)	
BIOLOGICAL DATA (report value of 10111 for Nekton Gill Net)	89888
NEKTON ORGANISMS-NONE PRESENT	98005
DURATION OF DEPLOYMENT (HRS)	98077
NUMBER OF SPECIES, FISH	98003
GILL NET MESH SIZE (INCHES)	98078
Benthic Macroinvertebrates Rapid Bioassessment Qualitative (Composite, Both, CN, 89904)	
BIOLOGICAL DATA (report value of 2011 for Benthic Macroinvertebrates Rapid Bioassessment Qualitative)	89888
BENTHIC DATA REPORTING UNITS (1=NUMBER OF INDIVIDUALS IN SUB-SAMPLE, 2=NUMBER OF INDIVIDUALS/FT2, 3=NUMBER OF INDIVIDUALS/M2, 4=TOTAL NUMBER OF INDIVIDUALS IN SAMPLE)	89899
BENTHIC SAMPLE COLLECTION METHOD (1=SURBER, 2=EKMAN, 3=KICKNET, 4=PETERSON, 5=HESTER DENDY, 6=SNAG)	89950
MESH SIZE, ANY NET OR SIEVE, AVERAGE BAR (CM)	89946
KICKNET EFFORT,AREA KICKED (SQ.METER)	89903
KICKNET EFFORT,MINUTES KICKED (MIN.)	89904
DIP NET EFFORT,AREA SWEEP (SQ.METER)	89902

NUMBER OF INDIVIDUALS IN BENTHIC SAMPLE	89906
DEBRIS/SHORELINE SAMPLING EFFORT, MINUTES	89905
ECOREGION LEVEL III (TEXAS ECOREGION CODE)	89961
BENTHOS ORGANISMS -NONE PRESENT	90005
TOTAL TAXA RICHNESS, BENTHOS	90055
NUMBER OF EPT INDEX	90008
HILSENHOFF BIOTIC INDEX (HBI)	90007
CHIRONOMIDAE, PERCENT OF INDIVIDUALS	90062
DOMINANT TAXON, BENTHOS PERCENT OF INDIVIDUALS	90042
DOMINANT BENTHIC FUNCTIONAL FEEDING GRP, % OF INDIVIDUALS	90010
BENTHIC PREDATORS, PERCENT OF INDIVIDUALS	90036
RATIO OF INTOLERANT TO TOLERANT TAXA, BENTHOS	90050
PERCENT OF TOTAL TRICHOPTERA INDIVIDUALS AS HYDROPSYCHIDAE	90069
NUMBER OF NON-INSECT TAXA	90052
BENTHIC GATHERERS, PERCENT OF INDIVIDUALS	90025
ELMIDAE, PERCENT OF INDIVIDUALS	90054
RAPID BIOASSESSMENT PROTOCOLS BENTHIC MACROINVERTEBRATE IBI SCORE	90081
BENTHIC DATA REPORTING UNITS (1=NUMBER OF INDIVIDUALS IN SUB-SAMPLE, 2=NUMBER OF INDIVIDUALS/FT2, 3=NUMBER OF INDIVIDUALS/M2, 4=TOTAL NUMBER OF INDIVIDUALS IN SAMPLE)	89899
Benthic Macroinvertebrates Quantitative Protocol (Composite, Both, CN, 89934, 89901, or 89935)	
BIOLOGICAL DATA (report value of 2012 for Benthic Macroinvertebrates Quantitative Protocol)	89888
BENTHIC DATA REPORTING UNITS (1=NUMBER OF INDIVIDUALS IN SUB-SAMPLE, 2=NUMBER OF INDIVIDUALS/FT2, 3=NUMBER OF	89899

INDIVIDUALS/M2, 4=TOTAL NUMBER OF INDIVIDUALS IN SAMPLE)	
BENTHIC SAMPLE COLLECTION METHOD (1=SURBER, 2=EKMAN, 3=KICKNET, 4=PETERSON, 5=HESTER DENDY, 6=SNAG)	89950
MESH SIZE, ANY NET OR SIEVE, AVERAGE BAR (CM)	89946
AREA OF SNAG SURFACE SAMPLED (SQ.MT)	89975
HESTER-DENDY DURATION (DAYS)	89933
PETERSEN SAMPLER EFFORT, AREA SAMPLED (SQ. MTR.)	89934
EKMAN SAMPLER EFFORT, AREA SAMPLED (SQ.METER)	89935
SURBER SAMPLER EFFORT, AREA SAMPLED (SQ. METER)	89901
ECOREGION LEVEL III (TEXAS ECOREGION CODE)	89961
BENTHOS ORGANISMS -NONE PRESENT	90005
TOTAL TAXA RICHNESS, BENTHOS	90055
NUMBER OF DIPTERA TAXA	90056
NUMBER OF EPHEMEROPTERA TAXA	90057
TOTAL NUMBER OF INTOLERANT TAXA, BENTHOS	90058
EPT, PERCENT OF INDIVIDUALS	90060
CHIRONOMIDAE, PERCENT OF INDIVIDUALS	90062
TOLERANT BENTHOS, PERCENT OF INDIVIDUALS	90066
BENTHIC GRAZERS, PERCENT OF INDIVIDUALS	90020
BENTHIC GATHERERS, PERCENT OF INDIVIDUALS	90025
BENTHIC FILTERERS, PERCENT OF INDIVIDUALS	90030
DOMINANT 3 TAXA, PERCENT OF INDIVIDUALS	90067
QUANTITATIVE PROTOCOLS REGIONAL BENTHIC MACROINVERTEBRATE IBI SCORE	90085
Benthic Macroinvertebrates Other Protocol (Composite, Both, CN, 89904)	
BIOLOGICAL DATA (report value of 2013 for Benthic	89888

Macroinvertebrates Other Protocol)	
DEBRIS/SHORELINE SAMPLING EFFORT, MINUTES	89905
BENTHIC SAMPLE COLLECTION METHOD (1=SURBER, 2=EKMAN, 3=KICKNET, 4=PETERSON, 5=HESTER DENDY, 6=SNAG)	89950
KICKNET EFFORT,MINUTES KICKED (MIN.)	89904
ECOREGION LEVEL III (TEXAS ECOREGION CODE)	89961
BENTHOS ORGANISMS -NONE PRESENT	90005
Habitat TCEQ Parts 1, 2, and 3 Protocol (Composite, Both, CN)	
BIOLOGICAL DATA (report value of 3011 for Habitat TCEQ Parts 1, 2, and 3 Protocol)	89888
STREAM TYPE; 1=PERENNIAL 2=INTERMITTENT S/PERENNIAL POOLS 3=INTERMITTENT 4=UNKNOWN	89821
STREAMBED SLOPE (M/KM)	72051
DRAINAGE AREA ABOVE MOST DOWNSTREAM TRANSECT	89859
STREAM ORDER	84161
REACH LENGTH OF STREAM EVALUATED (M)	89884
NUMBER OF LATERAL TRANSECTS MADE	89832
AVERAGE STREAM WIDTH (METERS)	89861
AVERAGE STREAM DEPTH (METERS)	89862
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	00061
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	89835
HABITAT FLOW STATUS, 1=NO FLOW, 2=LOW,3=MOD,4=HIGH	89848
MAXIMUM POOL WIDTH AT TIME OF STUDY (METERS)	89864
MAXIMUM POOL DEPTH AT TIME OF STUDY(METERS)	89865
TOTAL NUMBER OF STREAM BENDS	89839
NUMBER OF WELL DEFINED STREAM BENDS	89840

NUMBER OF MODERATELY DEFINED STREAM BENDS	89841
NUMBER OF POORLY DEFINED STREAM BENDS	89842
TOTAL NUMBER OF RIFFLES	89843
DOMINANT SUBSTRATE TYPE(1=CLAY,2=SILT,3=SAND,4=GRAVEL,5=COBBLE,6=BOULDER,7= BEDROCK,8=OTHER)	89844
AVERAGE PERCENT OF SUBSTRATE GRAVEL SIZE OR LARGER	89845
AVERAGE PERCENTAGE INSTREAM COVER	84159
NUMBER OF STREAM COVER TYPES	89929
AVERAGE STREAM BANK EROSION (%)	89846
AVERAGE STREAM BANK SLOPE (DEGREES)	89847
AVERAGE WIDTH OF NATURAL RIPARIAN VEGETATION (M)	89866
AVERAGE WIDTH OF NATURAL RIPARIAN BUFFER ON LEFT BANK (M)	89872
AVERAGE WIDTH OF NATURAL RIPARIAN BUFFER ON RIGHT BANK (M)	89873
AVERAGE PERCENT TREES AS RIPARIAN VEGETATION	89849
AVERAGE PERCENT SHRUBS AS RIPARIAN VEGETATION	89850
AVERAGE PERCENT GRASS AS RIPARIAN VEGETATION	89851
AVERAGE PERCENT CULTIVATED FIELDS AS RIPARIAN VEGETATION	89852
AVERAGE PERCENT OTHER AS RIPARIAN VEGETATION	89853
AVERAGE PERCENTAGE OF TREE CANOPY COVERAGE	89854
AESTHETICS OF REACH(1=WILD 2=NAT. 3=COMM. 4=OFF.)	89867
LAND DEVELOP IMPACT (1=UNIMP,2=LOW,3=MOD,4=HIGH)	89962
RIPARIAN VEGETATION %; LEFT BANK - TREES	89822
RIPARIAN VEGETATION %; RIGHT BANK - TREES	89823
RIPARIAN VEGETATION %; LEFT BANK SHRUBS	89824

RIPARIAN VEGETATION %; RIGHT BANK - SHRUBS	89825
RIPARIAN VEGETATION %: LEFT BANK - GRASSES OR FORBS	89826
RIPARIAN VEGETATION %; RIGHT BANK - GRASSES OR FORBS	89827
RIPARIAN VEGETATION %: LEFT BANK - CULTIVATED FIELDS	89828
RIPARIAN VEGETATION %: RIGHT BANK - CULTIVATED FIELDS	89829
RIPARIAN VEGETATION %: LEFT BANK - OTHER	89830
RIPARIAN VEGETATION %: RIGHT BANK - OTHER	89871
AVAILABLE INSTREAM COVER HQI SCORE: 4=ABUNDANT 3=COMMON 2=RARE 1=ABSENT	89874
BOTTOM SUBSTRATE STABILITY HQI SCORE: 4=STABLE 3=MODERATELY STABLE 2=MODERATELY UNSTABLE 1=UNSTABLE	89875
NUMBER OF RIFFLES HQI SCORE: 4=ABUNDANT 3=COMMON 2=RARE 1=ABSENT	89876
DIMENSIONS OF LARGEST POOL HQI SCORE: 4=LARGE 3=MODERATE 2=SMALL 1=ABSENT	89877
CHANNEL FLOW STATUS HQI SCORE: 3=HIGH 2=MODERATE 1=LOW 0=NO FLOW	89878
BANK STABILITY HQI SCORE: 3=STABLE 2=MODERATELY STABLE 1=MODERATELY UNSTABLE 0=UNSTABLE	89879
CHANNEL SINUOSITY HQI SCORE: 3=HIGH 2=MODERATE 1=LOW 0=NONE	89880
RIPARIAN BUFFER VEGETATION HQI SCORE: 3=EXTENSIVE 2=WIDE 1=MODERATE 0=NARROW	89881
AESTHETICS OF REACH HQI SCORE: 3=WILDERNESS 2=NATURAL AREA 1=COMMON SETTING 0=OFFENSIVE	89882
HQI TOTAL SCORE	89883
NO FLOW ISOLATED POOL: LARGEST POOL MAX WIDTH (M	89908
NO FLOW ISOLATED POOL: LARGEST POOL MAX LENGTH (	89909
NO FLOW ISOLATED POOL: LARGEST POOL MAX DEPTH (M	89910



NO FLOW ISOLATED POOL: SMALLEST POOL MAX DEPTH (	89911
NO FLOW ISOLATED POOL: SMALLEST POOL MAX WIDTH (	89912
NO FLOW ISOLATED POOL: SMALLEST POOL MAX LENGTH	89913
NO FLOW ISOLATED POOLS: NUMBER OF POOLS EVALUATE	89914
Habitat EPA EMAP Protocol (Composite, Both, CN)	
BIOLOGICAL DATA (report value of 3012 for Habitat EPA EMAP Protocol)	89888
Algae Diatoms (Composite, Both, CN, 93308)	
BIOLOGICAL DATA (report value of 4011 for Algae Diatoms)	89888
ALGAE SUBSTRATE TYPE (1=ROCKY 2=WOODY 3=SILT/SAND 4=COMPOSITE 5=ARTIFICIAL 6=NUTRIENT DIFFUSING)	93304
ALGAE SAMPLE TYPE (1=QUALITATIVE SINGLE SUBSTRATE 2=QUALITATIVE COMPOSITE 3=QUANTITATIVE 4=PERCENT SUBSTRATE COVERAGE)	93303
ALGAE HABITAT TYPE SAMPLED (1=RIFFLE 2=RUN 3=GLIDE 4=POOL 5=MULTIPLE HABITAT TYPES SAMPLED)	93307
ALGAE AREA SAMPLED, QUANTITATIVE (M2)	93308
ALGAL DATA REPORTING UNITS (1=CELLS/ML 2=CELLS/M2 3=CELLS/SAMPLE 4=OBSERVED)	93314
NUMBER OF DIATOM AND SOFT ALGAE GENERA IN SAMPLE	93301
NUMBER OF ALGAL DIVISIONS IN SAMPLE	93302
NUMBER DIATOM VALVES COUNTED	93316
NUMBER DIATOM TAXA	93318
DIATOM SHANNON DIVERSITY	93320
DIATOM POLLUTION TOLERANCE INDEX	93323
DIATOM SENSITIVE/INTOLERANT, %	93343
ALGAE, DOMINANT 3 TAXA, %	93333
ALGAE MOTILE TAXA, %	93335

ALGAE TOLERANT TAXA, %	93337
CYMBELLA GROUP RICHNESS	93340
FRAGILARIA GROUP RICHNESS	93344
Algae Soft Benthic Not Diatoms (Composite, Both, CN, 93308)	
BIOLOGICAL DATA (report value of 4012 for Algae Soft Benthic Not Diatoms)	89888
ALGAE SUBSTRATE TYPE (1=ROCKY 2=WOODY 3=SILT/SAND 4=COMPOSITE 5=ARTIFICIAL 6=NUTRIENT DIFFUSING)	93304
ALGAE SAMPLE TYPE (1=QUALITATIVE SINGLE SUBSTRATE 2=QUALITATIVE COMPOSITE 3=QUANTITATIVE 4=PERCENT SUBSTRATE COVERAGE)	93303
ALGAE HABITAT TYPE SAMPLED (1=RIFFLE 2=RUN 3=GLIDE 4=POOL 5=MULTIPLE HABITAT TYPES SAMPLED)	93307
ALGAE AREA SAMPLED, QUANTITATIVE (M2)	93308
ALGAL DATA REPORTING UNITS (1=CELLS/ML 2=CELLS/M2 3=CELLS/SAMPLE 4=OBSERVED)	93314
NUMBER OF DIATOM AND SOFT ALGAE GENERA IN SAMPLE	93301
NUMBER OF ALGAL DIVISIONS IN SAMPLE	93302
NUMBER OF CELLS/UNITS COUNTED, BENTHIC ALGAE	93346
CHLOROPHYLL A, BENTHIC	93347
ASH FREE DRY WEIGHT	93348
ALGAL CELL/UNIT DENSITY	93349
Algae Phytoplankton (Composite, Both, CN, 93403, 93400)	
BIOLOGICAL DATA (report value of 4013 for Algae Phytoplankton)	89888
ALGAL DATA REPORTING UNITS (1=CELLS/ML 2=CELLS/M2 3=CELLS/SAMPLE 4=OBSERVED)	93314
NUMBER OF DIATOM AND SOFT ALGAE GENERA IN SAMPLE	93301
NUMBER OF ALGAL DIVISIONS IN SAMPLE	93302

PLANKTON SAMPLE TYPE (1=TOW 2=GRAB 3=DEPTH INTEGRATED)	93390
PLANKTON SAMPLE VOLUME COLLECTED	93392
TOW TYPE (1=VERT., 2=HORIZ.)	89938
PLANKTON SAMPLE TOW LENGTH (METERS)	93400
PLANKTON SAMPLE TOW TIME (MINUTES)	93403
PHYTOPLANKTON DENSITY, TOTAL (CELLS/ML)	95999
DIVERSITY--MACROPHYTES	99300
PHYTOPLANKTON SAMPLED--NO ORGANISMS PRESENT	93305
PHYTOPLANKTON--UNKNOWN ORGANISM (#/SAMPLE)	93306
Algae Visual Algal Assessment (Composite, Both, CN)	
BIOLOGICAL DATA (report value of 4014 for Algae Visual Algal Assessment)	89888
ALGAE SUBSTRATE TYPE (1=ROCKY 2=WOODY 3=SILT/SAND 4=COMPOSITE 5=ARTIFICIAL 6=NUTRIENT DIFFUSING)	93304
ALGAE HABITAT TYPE SAMPLED (1=RIFFLE 2=RUN 3=GLIDE 4=POOL 5=MULTIPLE HABITAT TYPES SAMPLED)	93307
ALGAL DATA REPORTING UNITS (1=CELLS/ML 2=CELLS/M2 3=CELLS/SAMPLE 4=OBSERVED)	93314
ALGAL MAT (1=ABSENT 2=SLIME 3=VISIBLE 4=MEASUREABLE)	93405
ALGAL MAT THICKNESS	93407
BENTHIC ALGAE, PERCENT COVER	93409
GREEN FILAMENTOUS ALGAE, PERCENT COVER	93422
BLUEGREEN, PERCENT COVER	93424
DIATOM, PERCENT COVER	93426
RED ALGAE, PERCENT COVER	93429
FLOATING MAT/SCUM PERCENT COVER	93463
Zooplankton (Composite, Both, CN, 93403, 93400)	

BIOLOGICAL DATA (report value of 501 for Zooplankton)	89888
PLANKTON SAMPLE TYPE (1=TOW 2=GRAB 3=DEPTH INTEGRATED)	93390
PLANKTON SAMPLE VOLUME COLLECTED	93392
TOW TYPE (1=VERT., 2=HORIZ.)	89938
PLANKTON SAMPLE TOW LENGTH (METERS)	93400
PLANKTON SAMPLE TOW TIME (MINUTES)	93403

## ***Chapter 7 - Data Reporting***

This chapter defines the tools used to load data into the SWQMIS database. TCEQ's FOD staff enter their field measurements into SWQMIS via data entry screens. The SWQM program's lab samples analyzed by the TCEQ's Houston Laboratory are loaded into the database by DM&A data managers using the SWQMIS loader. For detailed instructions on entering data into the SWQMIS database, TCEQ staff should refer to the SWQMIS Users' Guide available at [http://www.tceq.state.tx.us/assets/public/compliance/monops/water/wqm/swqmis\\_users\\_guide.pdf](http://www.tceq.state.tx.us/assets/public/compliance/monops/water/wqm/swqmis_users_guide.pdf). Organizations reporting data to the TCEQ submit data using ASCII pipe delimited file formats to the appropriate Project Manager for loading by DM&A staff into SWQMIS.

### **TCEQ Region and Central Office Staff**

The TCEQ staff authorized to enter sample data into the database use the data entry screens in the Sampling Module of the SWQMIS database. The creation of Sample Events and Sample Sets along with field parameter data are required to be reported electronically to the DM&A Data Manager via SWQMIS within 45 days of the sampling event. When data is entered and published by TCEQ staff, SWQMIS assigns the data the status of pre-production data management (PREDM). Chapter 8 of the SWQMIS User's Guide provides guidance for entry of sample data into SWQMIS by TCEQ staff.

### **Laboratory Information Management System (LIMS)**

Laboratory analyses requested by TCEQ Regional Office staff on Request for Analysis (RFA) forms are performed by the TCEQ Houston Laboratory. These data are then reported by the laboratory to DM&A, and are loaded into the database. Upon loading the data are at the Pre-production data management status in SWQMIS. DM&A staff review the lab report and the electronic data for completeness, appropriateness, and supporting data (including codes, depth, date, time, tag number, and station ID), before publishing the data as production (PROD) data in the SWQMIS database.

### **TCEQ Partners and Contractors**

#### **Data Loader**

Two ASCII (DOS) pipe delimited text files must be provided to the TCEQ Project Manager for inclusion in SWQMIS. These two files must follow the format described below (example provided at the end of this chapter). These files are related to each other through the Tag ID, which is described in Chapter 6. There is a one-to-many relationship between the Sample/Event file and the Results file with multiple measurements in the Results file for each Event (monitoring/sampling event). For purposes of the upload files, an event record is defined as a unique sampling regime conducted at a specific date, place (station ID and depth), and time. This is different from a SWQMIS Sample Event. For example, a Sample Event might consist of collecting a metals in sediment sample at station 12049 on 5 February 2002, 13:00 hrs. Water, tissue, sediment, and distinct types of biological (nekton, habitat, benthic) samples are all considered separate event records, even when collected at the same time and location (i.e., during the same Sample Event). Each event record must have a unique Tag ID. Instantaneous field measurements (grabs) collected immediately before or after a 24-hour Sample Event

(composite) are also considered separate event records and the submitting entity may not be report it under the same Tag ID as the 24-hour data. Fields marked as Data Value Required = "Y" must be completed prior to data submission.

### Sample/Events File Structure

Each record in the Sample/Events File consists of the fourteen fields described below; fields may or may not contain data. Fields must be in the order listed in the table below. For a grab sample, if a field is only appropriate for composite Sample Event (noted with a "C" in the Data Value Required column), the field should still be present in the Events file, but left blank. The fields marked with a "Y" in the Data Value Required column must contain either a text or numeric value for every sample collected. Except for the 'Comment' field, these fields must contain only numeric or alpha characters, as designated in field descriptions. No punctuation (such as quotation marks, commas, periods, etc.) can be accepted.

Field Name	Data Field Required	Length	Data Value Required	Description
Tag ID	Y	7 <sup>1</sup>	Y	Key field that is common to both the Events and Results file. Each Tag_ID is unique in the Events file. The first 1- or 2-digits must match the Tag Prefix assigned to the submitting agency.
Station ID	Y	5	Y	A unique 5 digit code that identifies each sampling station. This number is generated by the database in response to the submission of a SLOC Request to DM&A. Data collected at new stations cannot be loaded into SWQMIS until the station ID has been assigned.
End date	Y	10	Y	Date the sample was collected. Reported as MM/DD/YYYY. Leading zeros are required for month and day. For composite samples this is the last date a sample or measurement was collected.
End time	Y	5	Y	The time the sample was collected. Reported in military (24-hour) format. For composite samples, this is the time the last sample was collected. Leading zeros are required where applicable (for example, 09:30).
End depth	Y	6	Y	The depth in meters at which the sample was collected. For composite samples, the deepest depth at which the sample was

				collected.
Start date	Y	10	C	This field requires a value for composite samples only and is the sample collection start date. If this field is not blank, then Start time, Start depth, Category, and Type must also contain a data value. If a sample is not a composite, this field should be blank. Reported as MM/DD/YYYY.
Start time	Y	5	C	This field requires a value for composite samples only and is the sample collection start time. If this field is not blank, then Start date, Start depth, Category, and Type must also contain a data value. If a sample is not a composite, this field should be blank. Leading zeros are required where applicable (for example, 09:30).
Start depth	Y	6	C	This field requires a value for composite samples only and is the depth nearest the surface for sample collection (in meters). If this field is not blank, Start time, Category, and Type must also contain a data value. If a sample is not a composite, this field should be blank.
Category	Y	1	C	This field requires a value for composite samples only and should correspond to the following codes: T=time, S=space, B=both, and F=flow weight. If this field is not blank, then Start date, Start time, Start Depth, and Type must also contain a data value. If a sample is not a composite, this field should be blank.
Type	Y	2	C	This field requires a value for composite samples only and should correspond to the following codes: ## = number of grabs in composite, CN = continuous, GB = number of grabs is unknown. If the data value is a single digit, a leading zero is required (for example, 3 ="03"). If a sample is not a composite, this field should be left blank.
Comment	Y	135	N	This is the text field for any observational data available for the event. If there is no observational data, this field should be left blank.

Submitting Entity	Y	2	Y	The code that indicates the entity responsible for submitting data to the TCEQ, usually the QAPP holder. Valid codes are assigned by the TCEQ, and presented in Chapter 4. (Formerly known as Source Code 1).
Collecting Entity	Y	2	Y	The code that indicates the entity actually collecting samples in the field. Valid codes are assigned by the TCEQ. This document lists these codes in Chapter 4. (Formerly known as Source Code 2).
Monitoring Type	Y	2	Y	The code used to identify the type of sampling that is being reported in the dataset for a unique tag. TCEQ assigns valid codes, and they are listed in Chapter 4. (Formerly known as Program Code).

<sup>1</sup> Tag ID can accept up to nine characters. However, seven characters is the norm.

### ***The generic structure of the Sample/Events file:***

Tag|Station Id|End Date|End Time|End Depth|Start Date|Start Time|Start Depth|Category|Type|Comment|Submitting Entity|Collecting Entity|Monitoring Type

### ***Examples of Sample/Event file:***

Grab:

0012345|16789|10/11/2003|12:00|0.3|||||Water green|LC|LC|RT

Composite:

0012345|16789|10/11/2004|12:00|0.6|10/11/2002|12:00|0.3|S||Sunny and warm|LC|LC|RT

Profile:

L150001|15301|01/01/2004|14:15|0.3|||||LC|LC|RT

L150002|15301|01/01/2004|14:15|6.10|||||LC|LC|RT

L150003|15301|01/01/2004|14:15|9.15|||||LC|LC|RT

24 Hour:

R150001|15301|01/02/2004|14:15|0.3|01/01/1999|14:00|0.3|T|24||LC|LC|CS

Tissue:

0012345|13270|12/12/2003|11:15|2|12/12/2003|14:15|0.3|B|04|Coots feeding|LC|LC|RT

### **Results File Structure**

The Results file may have one or multiple records for each event record. Each record consists of the nine fields described below; fields may or may not contain data. Fields must be in the order listed in the table below. If a field value is not appropriate for all result records, the blank field



must still be present in the Results file. These fields must contain only numeric or alpha characters, as designated in field descriptions. No punctuation (such as quotation marks, commas, periods, etc.) can be accepted.

Field Name	Data Field Required	Length	Data Value Required	Description
<b>Tag ID</b>	Y	7 <sup>1</sup>	Y	Unique code connecting the water quality sample results to a Tag ID in the Events file. The same code is assigned to all results that came from the same water quality sample. Therefore, there will be many results with the same Tag ID, which all match a single record in the Events file.
<b>End date</b>	Y	10	Y	The date the sample was collected. Reported as MM/DD/YYYY. This date needs to match the End date in the Events file for the specified Tag ID. Leading zeros are required for month and day.
<b>Parameter Code</b>	Y	5	Y	The 5 digit parameter code that identifies the substance being measured. Leading zeros are required where applicable (for example, 00400).
<b>GT/LT</b>	Y	1	N	If the value determined is a "<" value, report "<" in this field. If the value determined is a ">" value, then report a ">" in this field. Otherwise, leave blank.
<b>Value</b>	Y	8	Y	This is the level or test result of the substance being measured and is reported in the units defined in the parameter code description found in SWQMIS.
<b>LOD</b>	Y	8	N	This is the Limit of Detection for this parameter.
<b>LOQ</b>	Y	8	N	This is the Limit of Quantitation for this parameter.
<b>Qualifier Code</b>	Y	2	N	Formerly referred to as Remark Code. See Chapter 10 for a list of codes and their definitions.
<b>Verify Flag</b>	Y	1	N	If Value is outside the minimum/maximum range defined in SWQMIS (Chapter 2), the data submitter must place a "1" in this field to indicate that s/he has verified the data

				value. If the value cannot be verified, the submitting entity must add a qualifier code (Chapter 10) in the Qualifier Code field.
--	--	--	--	---

<sup>1</sup> Tag ID can accept up to nine characters. However, seven characters is the norm.

***The generic structure of the Results file:***

Tag|End Date|Parameter|GT/LT|Value|LOD|LOQ|Qualifier Code|Verify Flag

***Examples of Results file:***

Grab:

0012345|10/11/2002|00061|<|1|||

0012345|10/11/2002|00940||53||BL|

Composite:

0012345|10/11/2002|00221||24|||

0012345|10/11/2002|00209||18|||

0012345|10/11/2002|00210||22|||

0012345|10/11/2002|00211||14||PE|1

Profile:

L150001|01/01/1999|00010||18.3|||

L150002|01/01/1999|00010||17.6||J|1

24 Hour:

R150001|01/02/1999|00216||7.9|||

R150001|01/02/1999|00220||24|||

R150001|01/02/1999|00218||11.5|||

Tissue:

0012345|12/12/2003|74990||016|||

0012345|12/12/2003|74995||59|||

0012345|12/12/2003|81614||1|||

0012345|12/12/2003|81615||1|||

0012345|12/12/2003|00039||92|||1

0012345|12/12/2003|84100||2||SP|

## ***Chapter 8 - Data Review***

All data must be verified prior to its submittal to the SWQMIS database. A [sample checklist](#) used to assist with data verification is provided on DM&A's web page.

Contractors submitting data through TCEQ water programs must use the procedures, checklists, and/or forms required by their contracts (for example, TMDL data review checklists, CRP data summaries, or NPS data review checklists) to document data verification.

### **SWQMIS Data Loading Report**

The DM&A Team assists in data verification and validation prior to loading into SWQMIS. The SWQMIS data loader includes a tool that performs a verification of data received from data collectors and/or their representative TCEQ project managers. This verification confirms that the dataset is correct in format and complete in content. The verification also ensures that DM&A can upload the data to SWQMIS without errors. The loading tool also produces a summary report used for further diagnostics of any errors. Project managers can use this report for secondary data review.

### **Data Dictionary for the SWQMIS Data Loading Validator Report**

#### **Submitting and Collecting Entities and Monitoring Types**

Identifies all the combinations of Submitting Entity, Collecting Entity, and Monitoring Type Codes reported in the dataset, and descriptions of the codes are provided.

#### **Frequency of Parameter Occurrence**

Identifies the parameter codes, parameter descriptions, and the number of times the parameter appears in the dataset. Also includes the minimum "less-than" value, maximum "less-than" value, minimum quantifiable value, maximum quantifiable value, and mean values from the dataset.

#### **Stations in Dataset**

This section identifies sampled station IDs. Descriptions are provided for each station, along with the Basin ID and number of sampling events for each station.

#### **Outliers (Requires verification prior to loading.)**

Identifies the tag IDs, parameter codes, less than/greater than symbols, and values reported in the dataset that fall outside the predefined screening levels. The screening levels are listed in this section of the report as the minimum and maximum. If the minimum and/or maximum screening values appear outdated, complete a Parameter Code Request and submit to DM&A according to the process outlined in Chapter 2 in the SWQM DMRG.

#### **Historical Basin Comparison**

This section of the report provides each measurement that does not fall between the historical

minimum and maximum value for a parameter in a basin. Dataset values outside the historical data levels for the basin-parameter code combination along with Tag ID, basin ID, station ID, parameter code, less than/greater than symbol, and the reported value are retrieved from the provided dataset. Historical minimum value, historical maximum value, historical mean value, and historical number of samples reported for the basin-parameter code combination are calculated using the most recent data (5-year period.) currently existing in SWQMIS in that basin for that parameter.

### **Historical Station Comparison**

This section of the report provides each measurement that does not fall between the historical minimum and maximum value for a parameter at that station. Tag ID, station ID, station description, parameter codes, less than/greater than symbol, and the reported value are retrieved from the provided dataset. Historical minimum value, historical maximum value, historical mean value, and historical number of samples reported for the station-parameter code combination are calculated using the most recent data (5-year period) currently existing in SWQMIS at that station for that parameter.

### **Highest Values per Parameter**

This section of the report provides the top ten highest values for each parameter code within the data set. Reported fields include station ID, station description, end date, end time, parameter code, less than/greater than symbols, value, and end depth.

### **Lowest Values per Parameter**

This section of the report provides the top ten lowest values for each parameter code within the data set. Reported fields include station ID, station description, end date, end time, parameter code, less than/greater than symbols, value, and end depth.

### **Data Management Review**

In addition to the verification checks automatically performed by the SWQMIS data loading tool, TCEQ data managers also perform verification and validation checks using output from the Data Loading Report. Using the report as a guide, data managers compare the quality assurance (QA) document associated with the data load (QAP, QAPP) to the report output. The data manager verifies that the data are intended to be stored in SWQMIS and that the proper signatures appear on the QA document. The data manager then verifies that the sampling dates coincide with the effective date of the QA document. The use of the correct Tag Prefix is verified, as well as the use of proper Submitting Entity, Collecting Entity, and Monitoring Type codes. The data managers also verify all station IDs and parameter codes in the Data Loading report against stations and parameters described in the project QA document. Finally, the data managers ensure that the data submitter has verified all outliers in the data set. In the event that the data managers find discrepancies between the data set and the quality assurance document, the data managers will contact the lead project staff for resolution.

### **Data Not Adhering to QA Documents**

In the event that a data manager identifies data that was not collected as prescribed in a QA document or not covered by a QA document the data manager will return the data set to the lead project staff. The data manager will provide a Water Quality Planning Division (WQPD) Data Resubmittal Form to the project manager. It is the project manager's responsibility to complete the form detailing any excursions from the QA document. In addition to following the corrective action plan as described in the relevant QA document the project manager must also submit to data management any relevant documentation detailing the excursion from the QA document. The project manager then resubmits the data set, the Data Resubmittal Form, and any necessary documentation to the data manager. Once the data has been successfully loaded into SWQMIS, the Data Resubmittal Form will also be stored in the database to accompany the project's QA document(s).

## ***Chapter 9 - Data Corrections***

For corrections to data in the SWQMIS database, a [SWQM Data Correction Request](#) (DCR) form is submitted to DM&A. The data correction procedures in this chapter have been developed to maintain and fully document the integrity and reliability of the data in the SWQMIS.

### **SWQM Data Correction Request Description**

To request a correction, TCEQ staff submit a SWQM Data Correction Request form to the DM&A data managers. TCEQ contractor or cooperator agencies should complete and submit the form to their TCEQ program area project manager for delivery to DM&A. See the Required Information section below for details on the form fields. Omissions may delay completion of a request and/or require a DM&A data manager to contact the requestor for more information. Requests may be submitted either by standard mail, e-mail, or facsimile. See the Documentation section below for additional information about specific types of requests.

### **Data Correction Process**

The DCR is completed and submitted. In general, it is the responsibility of the individual or program that submitted the data to prepare a Data Correction Request form when necessary.

Submitting entities (contractors or cooperators) should fill out and submit a DCR form to their TCEQ project manager for corrections to their own data. They may also work cooperatively with their TCEQ project manager to request corrections to data other groups have submitted. The project manager forwards DCR forms to the DM&A data managers for processing.

TCEQ staff who discover errors in their own data should submit a completed DCR form directly to their programs DM&A data manager. TCEQ staff should contact the appropriate TCEQ project manager to inquire about other data they believe to be incorrect.

The DM&A Data Manager logs the DCR into the DCR Tracking Access Data Base and saves the DCR form in the appropriate folder in Waterdata.

DM&A data managers review the request and perform any necessary impact analysis, which may require obtaining further information from the requestor or other affected parties.

Once analysis is complete and a course of action selected, a DM&A data manager either completes the correction manually via the SWQMIS application or submits a SQL request with explanatory comments and the SQL code through the SWQMIS project manager to the Information Resources (IR) staff. The IR staff will approve and process the code in the production database.

The DM&A data manager sends confirmation of completion to the requestor via e-mail and stores a hardcopy of the request in the DM&A library. The DCR Tracking Database is updated with action taken and completion date. A soft copy of the signed DCR is also available under the Water Data folder on the shared network drive of the agency.

## **Data Correction Required Information**

### **Action Code**

Record in the 'Action Code Column' the appropriate code for either 'Add', 'Flag', or 'Correct' (A, F, C).

A = Add; Use this code to add information to a sample existing in the database.

F = Flag; Use this code to qualify data with a Data Qualifier Code (see App. E).

C = Correction; Use this code to correct a value existing in the database. If a correction is required, all fields on the Existing line and the necessary fields on the Correction line must be filled out.

### **Tag ID**

Record in the Tag Id Column the Tag ID or Sample Set ID of the sample to be corrected.

### **Station ID**

Record in the Station ID Column the Station ID that identifies the location of the sample.

### **End Date**

Record in the End Date Column the end date of the sample in mm/dd/yyyy format.

### **End Time**

Record in the End Time Column the end time of the sample.

### **End Depth**

Record in the End Depth Column the end depth of the sample

### **Data Source**

Record in the Data Source Columns the data source of the sample: Submitting Entity, Collecting Entity, and Monitoring Type.

### **Parameter Code**

Record in the Parameter Code Column the parameter code for the sample.

### **Value**

Record in the Value Column the measured value in the sample.

### **Data Qualifier**

Provide any data qualifier code applicable to the value.

### **Verify Flag**

If the value is outside the database minimum-maximum range for this parameter code, verify that the value is accurate.

## **Documentation**

### **Lab Errors**

In the case of the analyzing laboratory reporting errors or necessary corrections, documentation from the lab will be considered sufficient documentation to proceed with a correction without explicit request from the FOD sample collector.

### **Large-Volume Data Correction Requests**

When requesting corrections to large numbers of records (more than 25), DM&A requires that requestors submit an electronic list of the records to be updated in addition to the SWQM Data Correction Request. This is to protect data integrity and to document the intent of the request with complete clarity. This electronic list should include all fields on the SWQM Data Correction Request (Tag ID, Station ID, End Date, End Time, End Depth, Data Source information, plus Parameter Code, and Value if applicable). Spreadsheets (such as Excel files) and pipe-delimited text files are acceptable formats. Contact DM&A with any questions regarding these

instructions or the data correction process.



## ***Chapter 10 - Data Qualification***

Data stored in SWQMIS must be collected or acquired under a TCEQ approved Quality Assurance Plan (QAP) or Quality Assurance Project Plan (QAPP). Each quality assurance (QA) document sets forth Data Quality Objectives (DQOs) for the data generated by the monitoring project. These DQOs establish the minimum data quality acceptable for the project. However, because SWQMIS is an archival repository for the agency's surface water quality data, any data stored may be used by a variety of users with diverse purposes. Because of this, it is strongly encouraged that all data are stored in SWQMIS, and any data not meeting the DQOs set forth in the quality assurance document are qualified accordingly<sup>1</sup>. Data then becomes readily available in SWQMIS for all system users. Those users may then ascertain whether the data are of sufficient quality for their intended use.

Data Management and Analysis (DM&A) qualifies data that has not met DQOs using the data qualifier codes listed in Appendix E of this document. If a program area discovers data stored in SWQMIS that should be qualified, a [Data Correction Request](#) should be submitted to DM&A so that the qualifier can be added in SWQMIS. DM&A will work with the program area that originally submitted the data before qualifying that data.

<sup>1</sup> Data should be submitted to SWQMIS in accordance with the quality assurance document under which the data is collected. Not all QA documents allow qualified data to be submitted to SWQMIS.

## ***Chapter 11 - Database Reports***

SWQMIS is capable of generating several types of reports, details of which are provided in this chapter. For more detailed descriptions of these reports or for information on how to generate these reports, refer to the SWQMIS User's Guide 2010 (2.2).

Most reports are available in three formats: HTML (formatted report viewed in Internet Explorer), CSV (Comma Separated Values - opens in Excel), and PIPE delimited (ASCII flat text for importing into other applications). All report outputs can be saved to your own computer. Most reports will print from HTML on letter-size paper although you may have to use landscape setting. Reports are generated using Query Builder which allows you to build your query criteria using 'And/Or' logic.

### **To access SWQMIS:**

<http://www8.tceq.state.tx.us/SwqmisWeb/> (For users inside and outside the TCEQ firewall to access the Production environment of SWQMIS)

<http://www8tst.tceq.state.tx.us/SwqmisWeb/> (For users inside and outside the TCEQ firewall to access the Test/UAT environment of SWQMIS)

### **SWQMIS User's Guide:**

<http://www8.tceq.state.tx.us/SwqmisWeb/help/output/index.htm?page=html/15NavigatingintheSystem.html> (For users inside and outside the TCEQ firewall)

## **Types of Reports**

### **Comparison Information Report**

The Comparison Information Report is used to view information such as assessment screening levels, flow statistics, narrative criteria, numeric criteria, outlier screening values, reference values, or water effect ratios. The report is also useful for checking for site-specific standards or as a general reference tool.

### **Full Raw Data Export**

This report is for extracting ALL data in SWQMIS in PIPE delimited text format. This report is used primarily for posting the data to the internet on the CRP web site. Once posted to the web, this information is used by CRP and other contractors to update their databases. Users should be aware that this report utilizes a lot of memory and may cause some systems to crash.

## **Monitoring Station Inventory Report**

The Monitoring Station Inventory Report displays any or all attributes of any or all monitoring stations. This is useful for simple viewing or creating reference documents. This report limits output to 1,000 stations unless you bypass the Oracle 1,000-station constraint by not clicking the Search button while running the report. Refer to the SWQMIS User's Guide for more information.

## **Parameter Inventory Report**

The Parameter Inventory Report allows you to query any number of water quality parameters and their attributes. This is good for creating reference documents or just viewing parameter attributes like units of measurement, media, or methods used to analyze the parameter.

## **Raw Data Report**

The Raw Data Report generates only a PIPE delimited text file of data from any number of stations in either the traditional two-file Event/Result format or a one-file combined format (Event metadata included on every line with the Result data). This report is primarily for data requests for contractors or cooperators familiar with TCEQ data formats.

## **RFA Status Report**

This report was designed to aid data managers in validating data collected by TCEQ Regional Staff. Generally only data managers use this report.

## **Sampling History Report**

The Sampling History Report generates counts of parameters collected at any number of stations during a specified time period. The report bases the counts on certain parameters that are representative of the type of sampling being counted. For instance, the presence of a result for Aluminum in Water might indicate a 'Metals in Water' sampling event. This report is good for tracking monitoring activities through time. It might also be useful for checking the completeness of a monitoring effort.

## **Selective Data Report**

The Selective Data Report allows retrieval of monitoring data at any number of stations for any number of parameters. The report allows for retrieving data in a 'horizontal' format for easier use in spreadsheets. The report also has a summary function that will provide counts of exceedances (where screening criteria exist) and basic statistics. This report limits output to 100 stations, 1,000 parameters, and 50,000 rows of results.

## **Single Parameter Report**

The Single Parameter Report provides a statistical analysis of measurement results for a single parameter (there are also a few hierarchical parameter sets) at up to 20 stations. The report will display the measurement values, count exceedances of criteria for parameters with numeric criteria (Standards), and provide statistical summaries of the data. There are also several options for marking data by season and month. The data can be easily imported into Excel for graphing.

## **Upload Tracking Info Report**

This report is used to track the various datasets that are loaded by data managers into SWQMIS. Generally only data managers use this report.

## **Biological Raw Data Report**

The Biological Raw Data report allows you to create a text file of event data, results data, or a combination of the two for monitoring stations according to the criteria you specify. The biological raw data report will output only the data from the biological sample sets. If the sample event has at least one biological sample then the event is treated as a biological event and all the data from this sample event will be generated in the report output. The physical and chemical data associated with the biological event will also be reported in the biological raw data report.

## **Sampling Advanced Search**

This report is available for data managers to use in validating data collected by TCEQ Regional Staff. The report is also available for TCEQ Regional Staff to search for data already manually entered into SWQMIS and available at Pre-Production status levels Pre-RG and Pre-DM. The report has three checkboxes that allow the user to select for Only Unvalidated Sample Sets, Only Outliers, or Only Acquired Data Sample Sets.

## **Data Requests**

In the event that none of these database reports are appropriate, you can contact the data manager of your program area via email. Please include as much detail about your target dataset as possible in the e-mail. If you would like to submit an online data request form please go to [http://www.tceq.texas.gov/waterquality/data-management/wdma\\_forms.html](http://www.tceq.texas.gov/waterquality/data-management/wdma_forms.html) and select the appropriate data request form. Complete and submit the form using the appropriate instructions.

# ***Chapter 12 - Biological Data Recording and Reporting***

## **Introduction**

This chapter describes the methods used to report biological data to the SWQMIS database. Prior to sample collection or any monitoring of biological data can proceed, an approved Quality Assurance Project Plan (QAPP) or Quality Assurance Plan (QAP) must include specific details about scheduled biological monitoring. Biological data recording and reporting requires a clear understanding of the SWQMIS Sample Event and Sample Set structure. The structure is a one-to-many relationship with one SWQMIS Sample Event (the entire biological monitoring instance) containing multiple SWQMIS Sample Sets. Each SWQMIS Sample Set represents an individual biological sampling category such as nekton-summary and metadata, nekton-seining, or nekton-electrofishing, to name a few. For partner or contractor provided data, each sample set is represented by one Tag ID. Reporting biological monitoring data also requires attaching Binary Large Object (BLOB) files to the SWQMIS Sample Events and/or Sample Sets. This chapter focuses on the requirements specific to biological data collection and reporting to the TCEQ.

## **Biological Data Specifics – All Providers**

Parameter code 89888 represents all biological data for both reporting and retrieving data from SWQMIS. All biological data must be reported with parameter code 89888 in each SWQMIS Sample Set/Tag ID. Each SWQMIS Sample Set /Tag ID represents a single sampling category. TCEQ staff report their biological data via manual data entry into SWQMIS and select the data type and sampling category on the sample set metadata screen. Partners and contracted monitoring entities report their biological data via flat files that include values for parameter code 89888. The system will determine the data entry type and sampling category for each Tag ID based on the values reported for parameter code 89888. The user that queries specific biological data from SWQMIS in a report will be able to perform that query using parameter code 89888 with the sampling category value assigned to 89888. Alternatively, the user will be able to query SWQMIS for biological data based on the sampling category name. Therefore, it is crucial that data either loaded through the manual data entry method or through flat files include parameter code 89888 and the specific value for the sampling category. Chapter 6 of the DMRG references Commonly Reported Parameter Codes for biological data and includes the assigned values for each sampling category. The same chapter also provides information about reporting biological data sampling categories as composite samples and provides the parameter code(s) for which the composite information is based. Data providers usually report biological data as composite samples with the composite category as 'B' for both time and space, and composite type as 'CN' for continuous.

Data providers must record and report biological data in a specific manner. For a biological sampling event to be scheduled there must be discussion between the TCEQ project manager and the outside agency or contractor. The discussion must include identification of the types of biological data to be collected, and a QAP developed and approved that details the data types,

sampling categories, and parameters to be reported. Careful attention must be given to the reporting of each data type or sampling category, and the list of parameters expected for each data type and sampling category (see Chapter 6 for the Commonly Reported Parameter Codes and the specific value to report for parameter code 89888 for each sampling category). Biological data must be reported by the end of the fiscal year following the year it was collected, or as specified in the data provider's contract.

BLOB files are files that may be reported with the biological data. These include site maps, the Stream Physical Characteristics Worksheet with the transect data, fish voucher photos, or other biological data related images. BLOB files must be named in a format that includes the station ID, water body name, and sample end date. BLOB files can be attached at the sample event and sample set levels in SWQMIS by authorized TCEQ staff. Guidance in the SWQMIS User's Guide details how the BLOB files are to be attached in SWQMIS. There are limitations to the attachments. The maximum size for each attachment is 4MB and a maximum of 5 attachments can be added to each sample event. BLOB files can be zipped before uploading, but the size limitations of the zipped folder are the same as unzipped files. The maximum allowed length of the attachment description is 250 characters. The attachment description is a required field. Although the window for the description displays approximately 20 characters, once the sample set is saved with the entered description and the 'download' attachment button is selected, the system takes the user to a new screen where all the attachments are displayed. On this screen, the attachment descriptions and file names will be displayed in entirety allowing the user to distinguish between the attachments and select only the desired file to download.

TCEQ data validators typically expect four BLOB file types for each SWQMIS Sample Event for biological data. These include: a map of the area where biological data collection has occurred; voucher photos (see SWQM Procedures Manual, Volume 2 for guidance on vouchering) that applied to the entire SWQMIS Sample Event; the Stream Physical Characteristics Worksheet with the transect data; the Aquatic Life Use Monitoring checklist; and any other additional file as discussed between the collector and the TCEQ project manager. For individual SWQMIS Sample Sets/Tag ID there can be more than one attachment. All photographs for one SWQMIS Sample Set/Tag ID should be combined into one document that includes descriptive information for each individual photograph (preferably a pdf, but a Word document, or Power Point file will suffice). Electronic data provided by partner or contract entities should include a README.txt file that includes a list of each BLOB file, a description for each BLOB file, and a designated place for the BLOB file to be attached (either the SWQMIS Sample Event ID, or specific Tag ID).

## **TCEQ Regional and Central Office Staff**

The TCEQ staff that are authorized to enter biological data into the database use the data entry screens in the Sampling Module of the SWQMIS database. DM&A staff validate the biological data entered into SWQMIS by TCEQ staff. Regional staff are required to create sample events and sets, and report biological parametric data electronically to the DM&A Data Manager via SWQMIS within the fiscal year following the year that the data were collected. When TCEQ staff enter and publish data, SWQMIS assigns the data the status of pre-production data management (PREDM). Chapter 8 of the SWQMIS User's Guide provides guidance for entry of

sample data into SWQMIS by TCEQ staff. TCEQ staff should attach their BLOB files during manual data entry.

## **Laboratory Information Management System (LIMS)**

If biological monitoring includes the collection of a sample by TCEQ Regional or Central Office staff using Request for Analysis (RFA) forms, then the collector must create a sample set in the biological sample event for the lab data (one sample set per RFA). The laboratory then reports these data to DM&A, and they are loaded into the database.

## **TCEQ Planning Agencies and Contractors**

### **Biological Data Contractor Deliverables**

There are no differences in the format for the biological data flat files and the routine surface water quality monitoring data flat files that are delivered by a TCEQ planning agency or contractor (see Chapter 7 for the flat file format). However, the events file does need to have one Tag ID per biological sampling category. Chapter 6 of the DMRG references biological data sampling categories and indicates if the sample event is to be reported as a grab or composite sample. Guidance is also provided about the parameter code(s) for which the composite information is based on. The SWQM Procedures Manual Vol. 2 provides guidance about how the biological data is to be reported to the TCEQ with regard to providing a hard copy and an electronic copy. The electronic copy should consist of the ASCII pipe delimited flat files, plus any additional files specified by the project manager or contract. BLOB files would be included as additional files. The additional files will be loaded as attachments to the electronic data in SWQMIS at the SWQMIS Sample Event and Sample Set levels.

The partner or contractor-collected data is provided to the TCEQ following a test upload by the partner or contractor into the UAT environment of SWQMIS. If the test upload is successful, the data deliverable will then be provided to the TCEQ Project Manager. The partner or contractor should include a README.txt file in the electronic data deliverable. This file should list each BLOB file and indicate to which SWQMIS Sample Event or Sample Set the BLOB file is to be attached. This will facilitate the TCEQ staff attaching BLOB files to the correct SWQMIS Sample Event or Sample Set in the Production environment of SWQMIS.

### **Event File Structure**

The generic structure of the Sample/Event file:

Tag|Station Id|End Date|End Time|End Depth|Start Date|Start Time|Start  
Depth|Category|Type|Comment|Submitting Entity|Collecting Entity|Monitoring Type

### **Results File Structure**

The Results file may have one or multiple records for each event record. Each record consists of the nine fields described below; fields may or may not contain data depending on whether or

not they are required fields. Fields must be in the order listed in the table below. If a field value is not appropriate for all result records, the blank field must still be present in the Results file. These fields must contain only numeric or alpha characters, as designated in field descriptions. No punctuation (such as quotation marks, commas, periods, etc.) can be accepted.

The generic structure of the Results file:

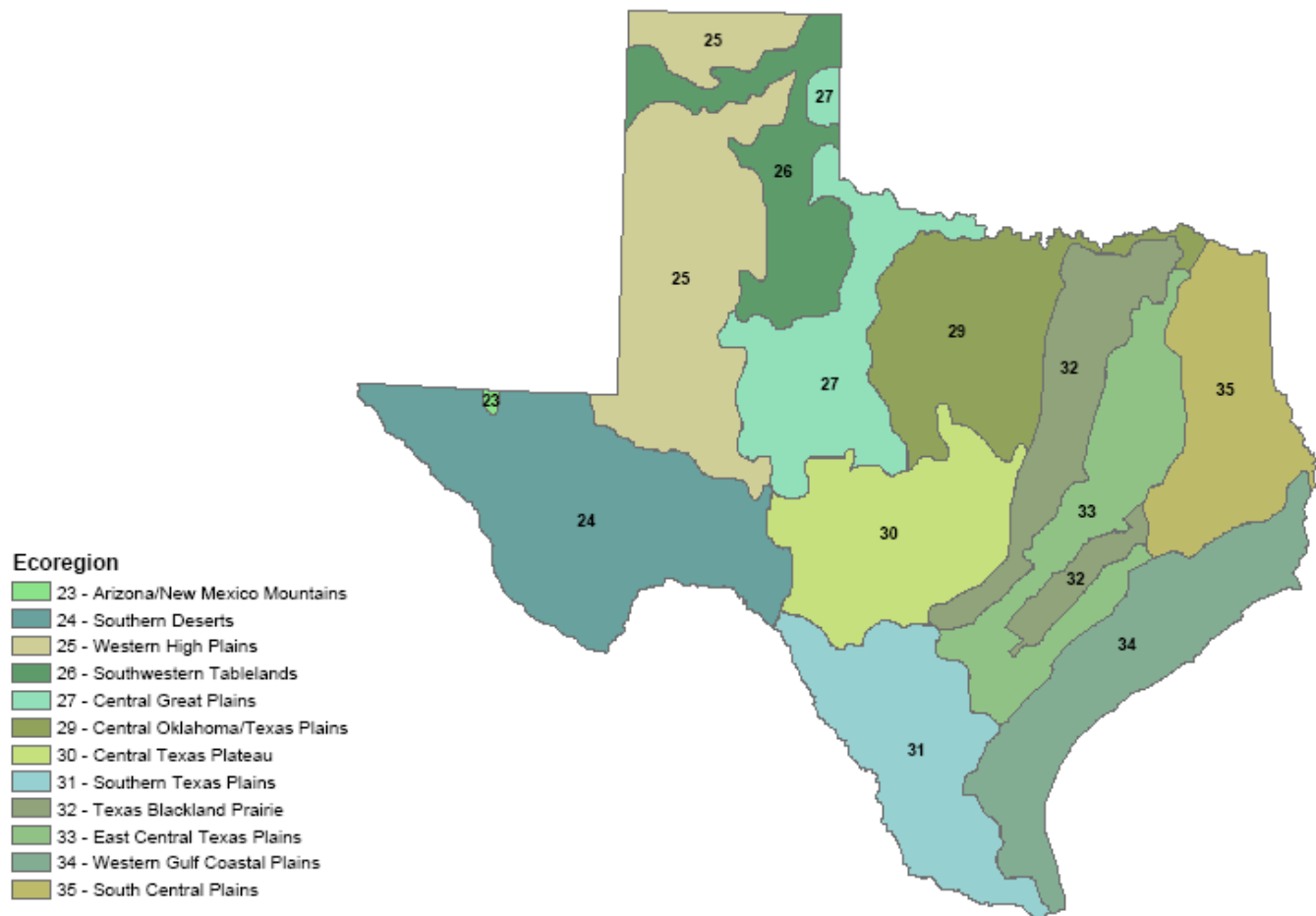
Tag|End Date|Parameter|GT/LT|Value|LOD|LOQ|Qualifier Code|Verify Flag

Note: some parameters will be reported in more than one sample set/Tag ID, such as Ecoregion Level III (parameter code 89961). Make sure to include parameter 89888 for all biological reporting.



## ***Appendix A - Maps***

## Level III Ecoregions of Texas



Adapted from Level III Ecological Regions of North America, Map (1987). Environmental Protection Agency/Jim Omernik.



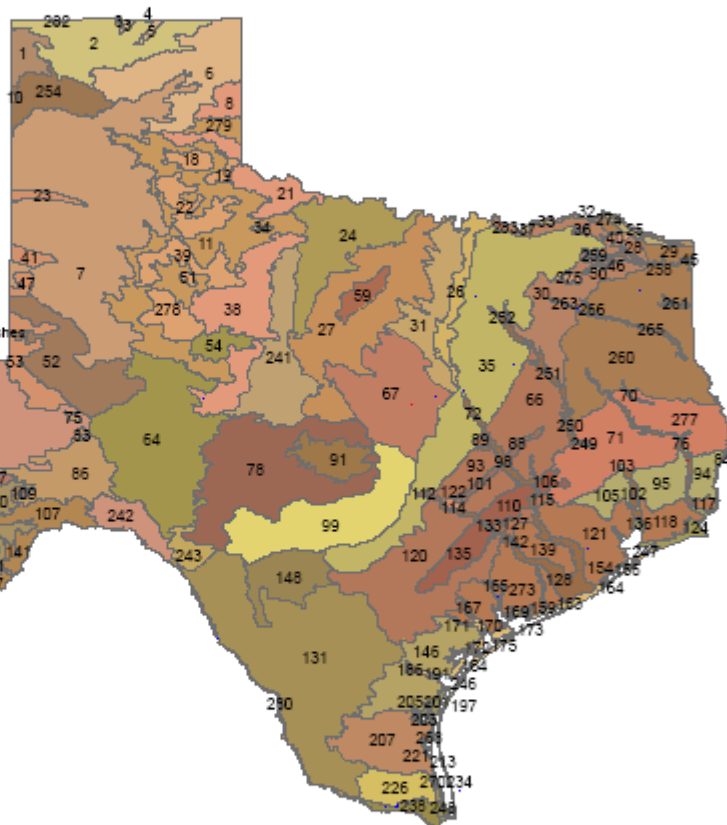
# Level IV Ecoregions of Texas

## Legend

### EPA Level IV Ecoregions

#### Level IV Name

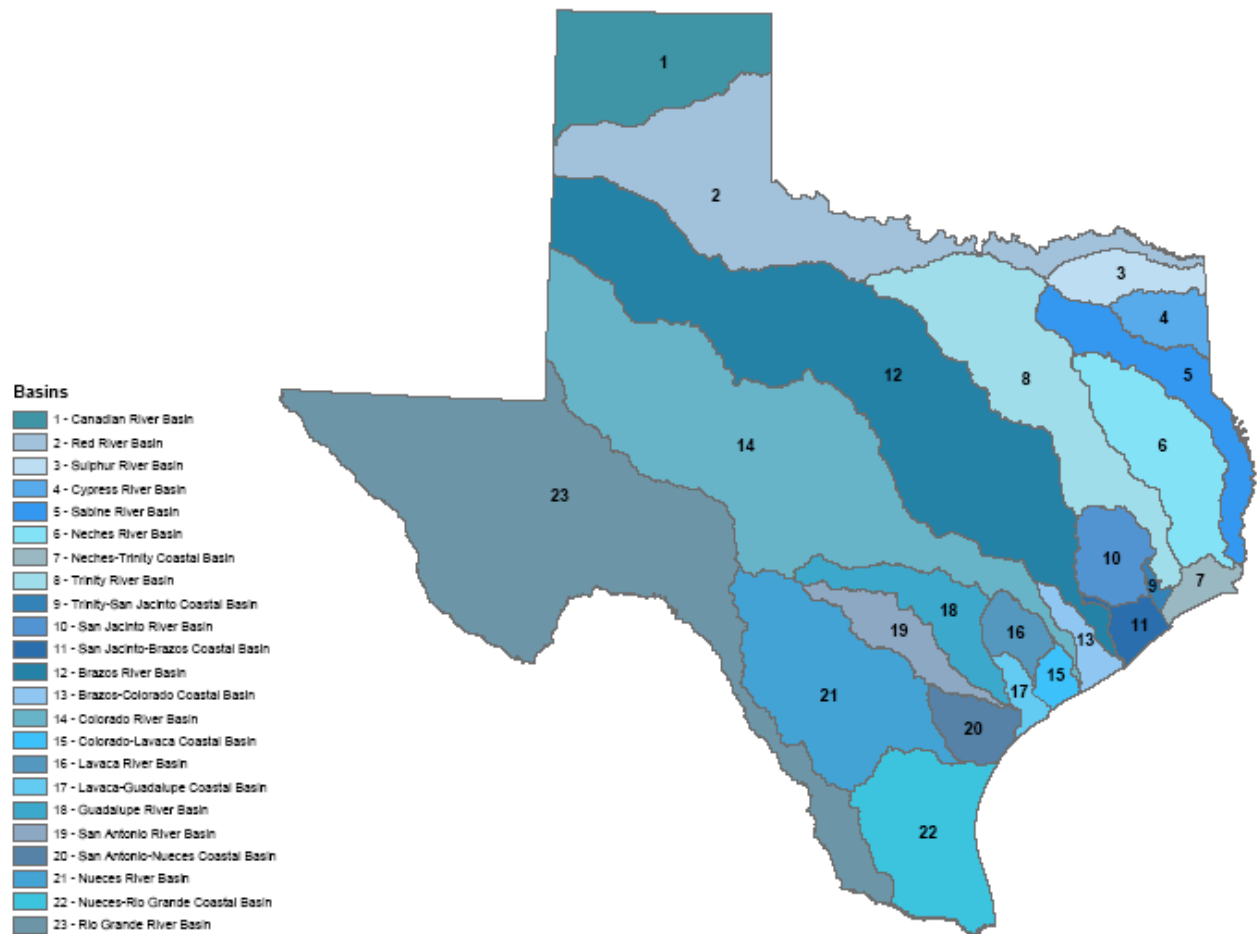
- 1 Arid Llano Estacado
- 2 Balcones Canyonlands
- 3 Bastrop Lost Pines
- 4 Broken Red Plains
- 5 Canadian/Cimarron Breaks
- 6 Canadian/Cimarron High Plains
- 7 Caprock Canyons, Badlands, and Breaks
- 8 Carbonate Cross Timbers
- 9 Chihuahuan Basins and Playas
- 10 Chihuahuan Desert Grasslands
- 11 Chihuahuan Desert Slopes
- 12 Chihuahuan Montane Woodlands
- 13 Coastal Sand Plain
- 14 Eastern Cross Timbers
- 15 Edwards Plateau Woodland
- 16 Flat Tablelands and Valleys
- 17 Flatwoods
- 18 Floodplains and Low Terraces
- 19 Grand Prairie
- 20 Laguna Madre Barrier Islands and Coastal Marshes
- 21 Limestone Cut Plain
- 22 Limestone Plains
- 23 Llano Estacado
- 24 Llano Uplift
- 25 Low Mountains and Basins
- 26 Lower Rio Grande Alluvial Floodplain
- 27 Lower Rio Grande Valley
- 28 Mid-Coast Barrier Islands and Coastal Marshes
- 29 Montane Woodlands
- 30 Northern Blackland Prairie
- 31 Northern Humid Gulf Coastal Prairies
- 32 Northern Nueces Alluvial Plains
- 33 Northern Post Oak Savanna
- 34 Northern Prairie Outliers
- 35 Pleistocene Fluvial Terraces
- 36 Red Prairie
- 37 Red River Bottomlands
- 38 Rio Grande Floodplain and Terraces
- 39 Rolling Sand Plains
- 40 San Antonio Prairie
- 41 Semiarid Canadian Breaks
- 42 Semiarid Edwards Bajada
- 43 Semiarid Edwards Plateau
- 44 Shinnery Sands
- 45 Southern Blackland/Fayette Prairie
- 46 Southern Post Oak Savanna
- 47 Southern Subhumid Gulf Coastal Prairies
- 48 Southern Tertiary Uplands
- 49 Stockton Plateau
- 50 Tertiary Uplands
- 51 Texas-Louisiana Coastal Marshes
- 52 Texas-Tamaulipan Thicket/scrub
- 53 Western Cross Timbers



0 100 200 400 Kilometers



# Texas River and Coastal Basins



## ***Appendix B - EPA Stream Station Types***

Type Code	Definition
<b>Level 1<sup>1</sup></b>	
STREAM	Station samples from a stream. A naturally occurring, freshwater, free-flowing, channeled body of surface water, with regular or seasonal flow, that empties into an ocean, lake, reservoir or another stream. Includes rivers.
CANAL	Station samples from a canal. An artificial, channeled waterway used for navigation, drainage, land irrigation, etc. Includes drainage ditches.
LAKE	Station samples from a lake. An inland body of water, naturally formed.
RESERV	Station samples from a reservoir. A man-made body of water formed by damming or obstructing a stream or river (many “lakes” are actually reservoirs).
TDLSTR	Tidal streams, e.g., most rivers “Below Tidal.”
SPRING	Station samples from a spring. A natural flow of groundwater from the earth, which feeds into a stream or body of water on the surface.
POND	Small ponds, i.e., stock tanks, reflecting pool. Does not include wastewater lagoons.
WELL	Station samples from a well. An artificial excavation from which groundwater is drawn or through which liquid waste is disposed of by injection.
FWTLND	Station samples from a freshwater wetland. A tract of soft, wet land saturated and sometimes partially covered with freshwater (where the water table is at or near the surface of the land) or where the surface is covered by shallow freshwater due to seasonal flooding or tidal conditions. Includes swamps and freshwater marshes.
PIPE	Station samples at or within a man-made facility. Includes water supply, wastewater treatment and industrial sites, sewers.
OCEAN	Station samples from an ocean, the open sea.
ESTURY	Station samples from an estuary. That part of a river or stream or other body of water having un-impaired connection with the open sea, whose water is measurably diluted by freshwater derived from land drainage, lagoons, bays.
SWTLND	Station samples from a saltwater wetland. A tract of soft, wet land sometimes partially covered with salt, brackish, or estuarine waters, or the surface of the land is covered by shallow saltwater due to tidal conditions.
<b>Level 2<sup>1</sup></b>	

AMBNT	Monitoring ambient conditions of the environment. Includes facility intakes pulling directly from an ambient source (for example, STREAM/AMBNT/MUN/INTAKE).
NONAMB	Monitoring at or within a man-made facility. Compliance monitoring falls into this category. Includes sites where facility discharge has directly influenced or impacted though not necessarily polluted the environment (for example, PIPE/NONAMB/OUTFL/NTRTMT).
<b>Level 3<sup>2</sup></b>	
MUN	Municipal (incorporated). Includes water supply or wastewater treatment facilities.
IND	Industrial facility.
CMBMI	Combined MUN and IND.
AGRI	Agricultural site. Includes raw crops, feedlots, grazing, and silviculture (forestry).
DOMEST	Domestic (residential) domicile or facility. Includes water supplies and on-lot septic systems for private dwellings.
DISPOS	Waste (solid or liquid) disposal site.
ABANDN	The site from which samples are gathered is abandoned.
NTRTMT	No Pollution abatement has been performed.
PTRTMT	Some, but not all, of the intended pollution abatement has been performed.
TREATD	All of the intended pollution abatement has been performed.
CMBTRT	Combined treatment, where treatment status does not clearly fall into one of the categories defined above. Includes unknown treatment status.
SEWER	Monitoring within a sewer (See level 5 for further identification).
INPLNT	Inside a treatment facility. This type is used in conjunction with plant location co-defined within the STORET User Handbook.
<b>Level 4<sup>2</sup></b>	



INTAKE	Intake or influent.
OUTFL	Outfall, discharge or effluent.
CMBSRC	Combined source (INTAKE and OUTFL).
<b>Level 5<sup>2</sup></b>	
BIO	Biological monitoring site (for BIOS Field Survey System).
FISH	Plant or animal matter sampling site.
HAZARD	Site of hazardous or toxic waste or substances.
MONITR	Source monitoring site, monitors a known problem or to detect a specific problem.
NET	Fixed site network station.
NONPNT	Nonpoint source pollution. Includes eutrophication, acidification, thermal change, organic nutrients, sedimentation, and hydromodification.
RUNOFF	Stormwater runoff.
SANSWR	Sanitary sewer.
STMSWR	Stormwater sewer.
SUPPLY	Water supply storage or treatment facility.

<sup>1</sup> One Type Code required.

<sup>2</sup> Required for PIPE (otherwise optional)

## ***Appendix C - Fish Tissue Data Reporting Guidance***

Notes: Texas Commission on Environmental Quality (TCEQ) staff collecting Surface Water Quality Monitoring water, sediment, fish tissue, and metals in water samples are to complete separate Request for Analysis forms (RFAs) for each sample. Separate RFAs are needed for each species of fish. Only TCEQ staff use the RFA form. Special projects may have different forms and data reporting procedures.

Refer to Chapter 7 of the Surface Water Quality Monitoring Procedures, Volume 1 (SWQM-V1) (1) for detailed information concerning Monitoring Components for Background Conditions, Long-Term Trends, Ecosystem Health, and Human Health Risk. Prior to sample collection the sample collector should review the section on “Monitoring Components” and submit a Monitoring Project Description Form (MPDF). This section provides information on where to sample, the type of sample to collect, the proper number of species, the number of individuals, the size of individuals, the sampling frequency, and example species. This information is summarized in Table 7-2. Quick Reference Guide-Procedures for Collecting Fish Tissue, located in Chapter 7 of the SWQM-V1, page 7-11.

## **Tissue Samples - Recording Data on the RFA**

### **Metadata**

Using SWQMIS, the collector will complete the metadata area on the upper front of the RFA. Following sample collection, the collector will complete the Composite Sample section.

### **Composite Sample**

The front of the RFA has a section for composite samples. This section refers to the method of collection. Therefore, fish tissue collection will always be Composite (e.g., time and space when electrofishing), not Grab. Start Date, Start Time, Start Depth, End Date, End Time, End Depth, Composite Category, and Composite Type are all required fields for composite samples. Start Depth and End Depth are measured from the water surface. Start depth refers to the shallowest depth encountered while collecting the sample and end depth refers to the greatest depth encountered while collecting the sample. Use meters, not feet, for the depth units of measure. The Composite Category will be B signifying both space and time. The Composite Type will be equal to the number of individuals in the sample and should be the same number of individuals recorded on the lower back of the RFA. Category and Type are required fields for composite samples.

### **Additional RFA Data Recording**

The collector will complete the area on the lower back of the RFA labeled Tissue. This area of the RFA has options for the tissue type or portion of the fish to be submitted to the laboratory (parameter code 74995). Circle either whole fish or fillet, or refer to a more extensive list of anatomical (tissue type) codes located in the Data Management Reference Guide (DMRG), Chapter 6. Fields are provided for three other criteria: Species, EPA Species Code (parameter code 74990), and # of individuals (parameter code 81614). Refer to the DMRG, Chapter 6, Commonly Used Parameter Codes, for the various Texas Species parameter codes. Record the

number of individuals in the sample. This number must agree with that recorded in Composite Type. Finally, circle the desired suite of analysis to be conducted on the sample. Options are metals, pesticides, or semivolatile organics.

## Tissue Samples - Reporting Required Data

TCEQ data collectors with data entry access to SWQMIS will report the data recorded on the RFA along with the information presented in the following table unless otherwise instructed in a specific project's QAPP or MPDF. TCEQ data collectors will report this data through the SWQMIS sample set and result data entry system just like other field data. Once in the SWQMIS Sampling module, locate the sample event and input the Fish Tissue Results. Select Tissue Sample Metadata for the Data Entry Type. If data management functions are being performed by a contracting entity (primarily CRP/TMDL/NPS contractors, SWQM contractors, or other state agencies such as the Texas Department of State Health Services (TDSHS) or the Texas Parks and Wildlife Department (TPWD) that do not have access to the SWQMIS data entry system), the data will be reported through the use of ASCII pipe delimited file formats found in Chapter 7 of the SWQM DMRG. See the table below for a partial list of fish tissue parameter codes.

### Common Fish Tissue Specimen Parameters

Parameter Code	What to Enter	Reference
5-Digit, Texas Species Code	Number of individuals	Sample collected, and DMRG, Chapter 6
74990	EPA Species Code	DMRG, Chapter 6
74995	Anatomical Part Code	DMRG, Chapter 6
81614	Number of individuals in tissue sample	Sample collected
81615	Number of species in tissue sample	Always use one species in a tissue sample, value=1
00039	Length in millimeters (if one fish)	Sample collected
00019	Weight in grams (if one fish)	Sample collected
84100	Sex of sample	1=male, 2=female, 3=mixed,

		4=unknown
--	--	-----------

## **Tissue Samples - Completing the Fish Collection Reporting Form**

The Fish Collection Reporting Form is used by TCEQ staff to report fish collection activities to SWQM-Central Office (SWQM-CO) staff. The Fish Collection Reporting Form is located in Chapter 7 of the SWQM-V1 (Figure 7.1, page 7-12). Fish tissue collection events conducted within each region are compiled and reported annually to SWQM-CO. SWQM-CO will tally and submit the information to TPWD to fulfill the scientific collection permit requirements. Refer to the Fish Collection Reporting Form for guidance on reporting data for the TPWD Permit Requirements.

## ***Appendix D - Geographic Information Codes***

The following codes are for use in Station Location (SLOC) Requests through the SWQMIS database and are values for fields listed in Chapter 3. If any entity or program submitting a SLOC Request finds that no appropriate code exists for its needs, please contact DM&A at [wdma@tceq.texas.gov](mailto:wdma@tceq.texas.gov).

For further reference on data standards, data sources, and other useful links, also consult the TCEQ Geographic Information Systems website: <http://www.tceq.state.tx.us/gis/>.

## Horizontal Reference

Code	Definition
FAC_CEN	Center of Facility
FAC_NW	Northwest Corner of Facility
FAC_NE	Northeast Corner of Facility
FAC_SW	Southwest Corner of Facility
FAC_SE	Southeast Corner of Facility
FAC_ENTR	Main Entrance of Facility
STRUC_CEN	Center of Structure/Building
STRUC_NW	Northwest Corner of Structure/Building
STRUC_NE	Northeast Corner of Structure/Building
STRUC_SW	Southwest Corner of Structure/Building
STRUC_SE	Southeast Corner of Structure/Building
STRUC_ENTR	Main Entrance of Structure/Building
OTHER	Other

## Horizontal Datum

Code	Definition
NAD83	North American Datum of 1983
NAD27	North American Datum of 1927
WGS84	World Geodetic System of 1984
UNKWN	Horizontal Datum Unknown

## Horizontal Collection Method



**Code**

GPS\_DIFF

GPS\_UNSPECIFIED

INTERPOLATION-MAP

INTERPOLATION-PHOTO

CENSUS BLOCK-1900-CENTROID

CENSUS-OTHER

ADDMAT\_INT

ADDRESS MATCHING HOUSE NUMBER

ADDRESS MATCHING-OTHER

ADDMAT\_CL

INTERPOLATION-SATELLITE

INTERPOLATION-SPOT

UNKNOWN

**Definition**

Global Positioning System (GPS) - Differential Correction

Global Positioning System (GPS) - Non-Differentially Corrected

Map Interpolation - Digital

Photo Interpolation - Digital

Census 1990 - Block Centroid

Census Other

Address Matching - Intersection

Address Matching - House Number

Address Matching - Other

Address Matching - Center Line

Interpolation Satellite Imagery

Interpolation Satellite Imagery - SPOT

Method Unknown

**Horizontal Accuracy****Code**

DOQQ

TOPO

GOOGLE MAP

GIS

GPS UNIT

**Definition**

1-Meter DOQQ has an accuracy of 5 meters

Has an accuracy of 12 meters

Uses 1-Meter DOQQ's so it has an accuracy of 5 meters

Uses 1-Meter DOQQ's so it has an accuracy of 5 meters

The accuracy level reported by the GPS unit

**Elevation Datum****Code**

NGVD\_88

NGVD\_29

**Definition**

North American Vertical Datum of 1988

North American Vertical Datum of 1929

**Code**

UNKNOWN

**Definition**

Vertical Datum Unknown

**Elevation Method****Code**

DEM\_10

**Definition**

Digital Elevation Model - 10 Meter

DEM\_30

Digital Elevation Model - 30 Meter

DEM\_60

Digital Elevation Model - 60 Meter

DEM\_90

Digital Elevation Model - 90 Meter

TOPO

Digital 7.5' United States Geological Survey (USGS)  
Topographic Map

SURVEY

Ground Survey

GPS\_SURV

Global Positioning System (GPS) - Survey Grade  
Receiver

## ***Appendix E - Data Qualifiers***

Code	Definition	Description and Usage
A	Not Analyzed	This code has been used in the past in datasets where not all parameters in a standard suite were reported. This code is not currently in use.
AA	Value above AWRL	The value reported is above the minimum analytical sensitivity required by the program (documented in the SWQM QAPP).
AQ	Value above quantitation range	The analysis returned a value statistically unreliable based on the capability of the instrument.
B	Bactericidal Effect Indicated	Elements of the sample or preservative are known or have been observed to have an effect on certain or all bacteria present. This qualifier alerts data users that bacteria values may reflect this impact.
BL	Blank did not meet SWQM QA criteria	If the blank sample associated with this measurement did not meet SWQM QA criteria, this qualifier marks the data point for exclusion from 305(b) assessment analysis.
BN	Biological specimen not vouchered	Biological specimen not vouchered.
BQ	Analyte detected below quantitation limits	The analyte was detected at a level statistically unreliable based on the capability of the instrument.
C	Chlorine Present	Chlorine present in the sample or during analysis may have affected this result.
CU	Value deemed unreasonable by collector	Collector deems value unreasonable for waterbody, although value not an outlier and parameter passed all QC.
D	Did Not Pass All Q.C. Criteria	This qualifier may aid in decisions regarding data usability, in combination with details that may be in the sample notes describing which criteria were not met.
DU	Duplicate Data	If duplicate data are accidentally loaded into SWQMIS, this qualifier is used to alert the user that certain data points may weight analysis.
E	Lab Error	This qualifier may be used if several errors apply or if a description of the specific error would not aid in data usability decisions.
ES	Estimated Value	A simple alert to the data user that this is not an analytically derived value.

F	No Preserved Sample	An unpreserved sample may still yield some useable data; this code is used to qualify the parameters within that sample that are negatively impacted by lack of preservatives.
G	No Sample Submitted	This code has been used in the past for samples where expected/scheduled analyses could not be performed. This code is not currently in use.
H	Hold Time Exceeded	This qualifier may aid in decisions regarding data usability, in combination with information about length of time exceedance that may be in the sample notes.
I	Interference	Interference occurred during analysis; this result is questionable. Any available details should be included in the sample notes.

Code	Definition	Description and Usage
IO	Incomplete & Unofficial	An alert to the data user that this value is associated with a sample missing required information such as sample depth or sample time. Any available details should be included in the sample notes.
J	All Samples Preserved	Analytes usually quantified from unpreserved samples may be reported even if all samples arrived at the lab preserved.
K	Statistically Unreliable	Collector or analyst review revealed this result to be unreliable or unreasonable. See also code OQ, which may be applicable.
L	Call Lab	This qualifier may be used if several errors apply or if the error requires more explanation than is practical to include in the sample notes. Information from the lab is necessary to make a decision about data usability for parameters with this qualifier.
M	Instrument Failure	Instrument failure occurred during analysis; this result is questionable. Any available details should be included in the sample notes.
ME	Method Not Appropriate for SWQM Assessment	This qualifier may indicate that the value was obtained using alternative or experimental methods. These methods are documented in their specific QAPP but not approved for SWQM 305(b)/303(d) assessment.
N	Container Leaking	A sample container arrived at the lab leaking. Effect on the sample and the resulting data is unknown or unquantifiable. Any available details should be included in the sample notes.
ND	Material Specifically Analyzed For But Not Detected	This qualifier is a value-added remark, usually used when a result value of "less than" the analytical limit is reported. It indicates that while the reported value is correct, the material was not detected at all.

NO	Data Not Collected Under Approved Agency QAPP	These data may be acquired from outside sources without the complete verification and validation against the SWQM QAPP. They may also be data associated with a TCEQ project collected outside its QAPP effective period.
O	Shipping Error	The sample was received with a deficiency incurred during shipping. It may indicate such circumstances as an open or damaged shipping container. See also code N, which may be applicable.
OQ	Outlier value deemed questionable by collector	Values outside the SWQMIS minimum/maximum screening levels for that parameter are examined by the data collector. Those that are reasonable for the conditions at the sample location (usually based on the professional expertise of the collector) are verified. Those that are not reasonable are qualified with this code to indicate that some unknown error may have occurred to impact the result.
OR	Results Based on Colony Count Outside Acceptable	Bacteria colony counts outside the proscribed range were used to derive this result; the result is questionable.

Code	Definition	Description and Usage
P	Total Does Not Warrant TCLP	This informative remark does not indicate that the result is questionable. It is simply a notation to alert the data user that a result value from a fraction analysis is not high enough to necessitate a Toxicity Characteristic Leaching Procedure. The result from fraction analysis is sufficient to make a determination of compliance or toxicity.
PE	Presumptive Evidence of Presence of Material	A simple alert to the data user that this may not be an analytically derived value. This qualifier may also be used to mark an analytical value when the presence of that parameter suggests that another material not specifically analyzed for may be present. Any available details should be included in the sample notes.
PV	Presence of Material Verified But Not Quantified	This code has been used in the past for samples where the analyte quantity was above the limit of detection but below the limit of quantitation. Values with this qualifier are not suitable for use in quantitative data analysis. This code is not currently in use.
Q	Quantity Not Sufficient	This code has been used in the past for samples where expected/scheduled analyses could not be performed due to insufficient sample volume. This code is not currently in use.
R	Improperly Collected Sample	This qualifier alerts the data user that the value is questionable due to a sample collection error. Any available details should be included in the sample notes.
RP	RPD outside accepted recovery limits	This qualifier may aid in decisions regarding data usability, in combination with details that may be in the sample notes describing the actual RPD value associated with the QC sample.
S	Container Broken in Shipment	This code has been used in the past for samples where expected/scheduled analyses could not be performed due to loss or contamination of the sample. This code is not currently in use.



SP	Split did not meet SWQM QA criteria	The split sample criteria documented in the SWQM QAPP were not met for this parameter. Any available details about which criteria were not met should be included in the sample notes.
SR	Spike recovery outside accepted recovery limits	This qualifier may aid in decisions regarding data usability, in combination with details that may be in the sample notes describing the actual spike recovery value associated with the QC sample.
T	Exceeded Preservation Temperature	The temperature of the sample was beyond the specified preservation limit at time of analysis.
U	Reported Values Less Than Detection Limit	The analysis returned a value statistically unreliable based on the capability of the instrument.
UR	Value deemed unreasonable by DM&A	Values clearly unreasonable but without sufficient documentation (or resources) to cite a more specific error may be flagged with this qualifier.